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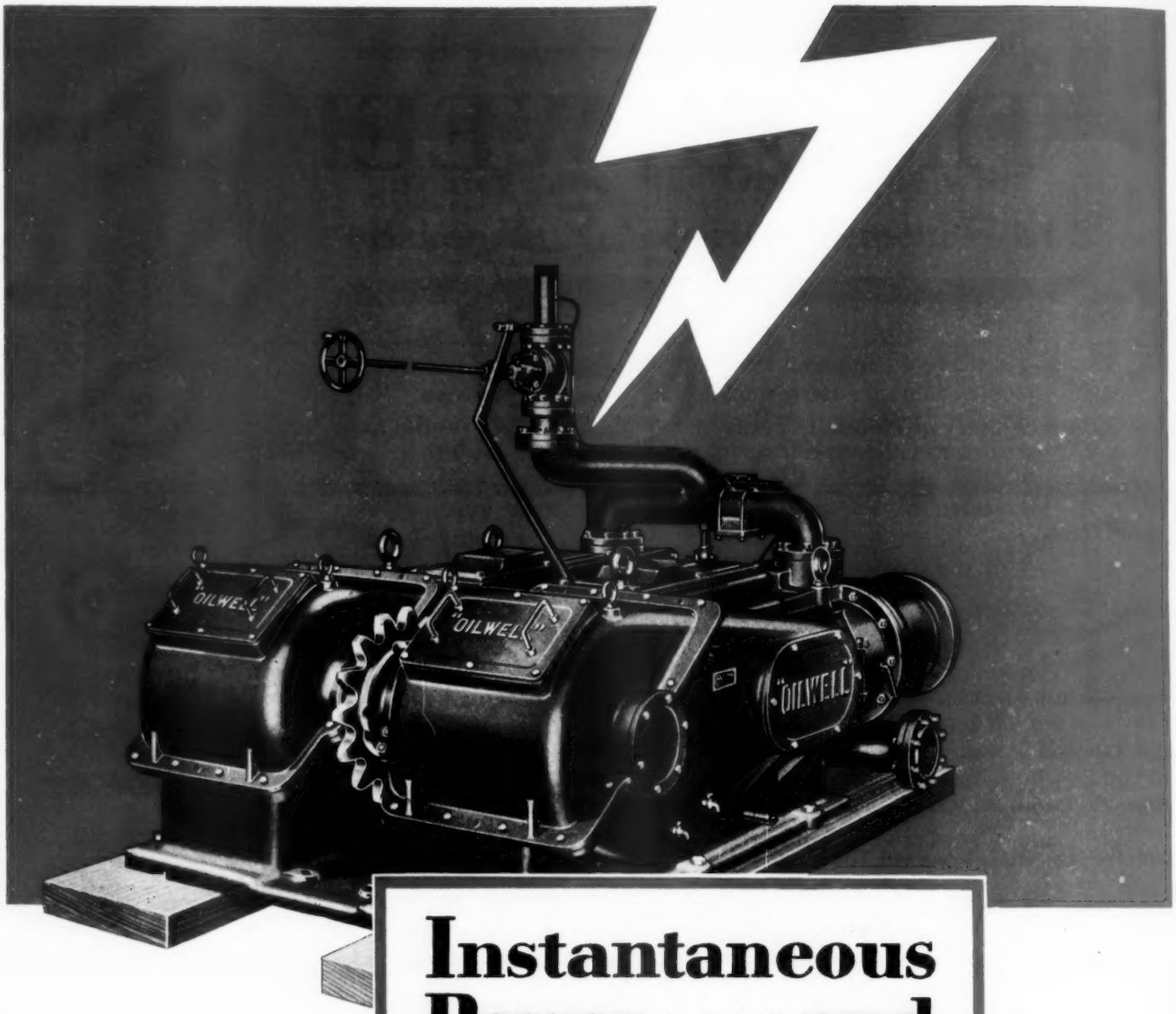

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The OIL WEEKLY

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Preventing Blowouts *While Drilling* Through High Pressure Zones

Devices employed for this purpose must be quick and positive in function

By BERNARD H. SCOTT
Petroleum Engineer

THE premature "blowout," with its accompanying expense and disastrous result, is the direct effect of various causes and conditions encountered in the process of drilling into productive zones containing oil and gas under high pressures, without preliminary precautions being taken for the immediate control of any unexpected flow which might occur.

Some of these conditions are, unquestionably, unavoidable. However, the causes are well known, and there are methods and devices available, the installation of which would, in many instances, obviate the possible destructive losses which might otherwise be sustained under such circumstances.

The greatest pressures encountered in the productive members of our known fields are insufficient to cause a premature flow, provided that an unbroken column of mud-laden fluid, equivalent to the depth of the hole, can be maintained upon the oil bearing horizon at all times; this is at once evident.

Specific Gravity of Fluid Heads

Manifestly, the chief problem confronting the operator is to devise some positive method or system by which such a fluid head, of the required specific gravity, can be exerted on the high pressure reservoir members continuously, irrespective of the porosity or any other undeterminable condition which may exist in either the overlying formation or the productive zone proper. To accomplish this, it is necessary to add some ingredient to the circulating fluid which will have a tendency to collect and form a barrier when forced into any small porous or fractured points in the wall of the hole, and thereby permit the upward moving fluid to form a plastic seal, under pressure, over the clogged interstices, thus obtaining a returning volume of fluid at the top of the casing proportionate to the amount of fluid pumped into the drill pipe, plus the volume represented by the excess mud contained in the drill cuttings. By maintaining a careful check relative to the volume of returning circulating fluid and drill cuttings entering the mud pit, it would be a simple matter to determine quickly any appreciable loss of fluid into the formation, at which time, the clogging material could be added immediately to the mud in the suction pit.

Valve Control of Pressures

In addition to this precaution, and in order to effectively safeguard against any possibility of a premature flow, some positive means of retaining high pressures under valve control should be

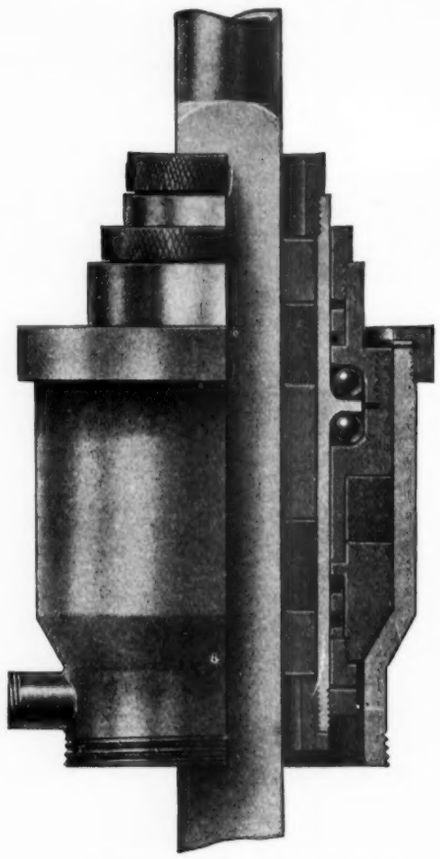
installed on the casing at the surface. In the event that a substantial amount of the circulating fluid should find access into the formation within a short period of time, the matter of pumping a sufficient volume of the highly plastic sealing fluid into the hole quickly enough to correct the condition during a correspondingly short interval might prove to be a physical impossibility.

There are a number of such devices on the market at the present time, each having some specific method of operation to cause it to function under conditions suitable to its individual design.

One type of casing control unit is so constructed that an inner cylinder with a flange formed on the outer circumference a short distance below the upper end, serves as a pack-off gland container about the outside of the drill pipe or grief stem, maintaining a fluid-tight seal between the outside of the drill pipe string and the inner wall of the gland container, with the annular flange extending outward between and supported by two sets of ball bearings the entire inner unit rotating with the drill pipe, within an outer packing assembly.

Inner Packing Assembly

In fitting the inner cylinder packing assembly about the drill pipe, a lower bushing is tightly screwed into position at the base of the cylinder, and a steel supporting gland of the split-ring type is dropped into place. This is followed by a split packing rubber, a second steel gland, another packing rubber and an upper steel split gland or follower, the latter containing a longitudinal key formed onto the outer surface of one of its semi-circular parts which fits snugly into a keyway milled vertically within the upper portion of the gland container. The purpose of this key is to avoid any rotative movement of the drill pipe within the inner packing assembly, while at the same time permitting a ready vertical movement for the



Rotary Gland Casing Control

operation of adjusting glands and compressing the rubber packing. When the rubber packing and steel gland rings have been placed in position within the containing cylinder, an upper adjusting bushing is installed and screwed downward against the glands until the packing is expanded sufficiently to effect a proper seal. The inner packing assembly is then ready to be installed within the outer packing unit which forms the seal between the outside of the inner cylinder shell and the inner wall of the body of the device.

The outer packing unit consists of a steel base sleeve, tapered conically at the lower end to fit into a seat within the lower portion of the body. This sleeve contains a large diameter bore from the lower end upward to within a short distance of the top, at which point the bore is reduced to a diameter slightly larger than that of the outside of the inner cylinder. The larger bored portion is threaded to receive a steel adjusting bushing, and serves as a stuffing box for packing purposes. The upper end of the base sleeve is bored to a large diameter for a short distance to permit vertical travel of the main compression gland within this recess as the packoff sleeve is being expanded. The packoff sleeve is a thick rubber ring which is placed in position above the base sleeve. The lower cylinderical portion of the main compression gland fits within the rubber packoff sleeve, while the upper section, being of the same outside diameter as the rubber, rests upon the upper end of the packoff sleeve. The main compression ring is grooved internally to form a seat or race for a set of ball bearings, and contains an internal thread at the upper end into which is screwed the bearing adjusting sleeve. The upper part of the bearing adjusting sleeve is threaded internally and bored sufficiently large for a distance to serve as a stuffing box, similar to the larger bored section of the base sleeve.

Assembly Make-up

In making up the assembly, the inner gland container, equipped with packing and gland rings having either square central openings for packing about the "kelly," or circular openings to seal around the outside of the drill pipe, as desired, is placed in position, and the adjusting bushings tightly set against the glands; the inner assembly is then lowered within the outer packing unit, and the upper and lower packing glands within the outer unit snugly adjusted, after which, a locking ring is screwed tightly into position on the outside of the inner cylinder and up against the lower gland adjusting bushing. The complete packing assembly is then ready to be lowered into the body. While drilling is in progress, a heavy annular hood is screwed onto the outside of the body, serving as a means to apply end pressure on the rubber sleeve. Several holes, equally spaced

Lip Ring

Packing Assembly, closed

Packing Assembly, open

Single Stuffing Box Control

are bored into the outer shell of the hood, so that, by inserting a bar or rod into one of these holes, the hood can be turned to apply additional pressure as needed. The body of the device is equipped with two lateral ports from which the returning circulating fluid discharges into the mud flume.

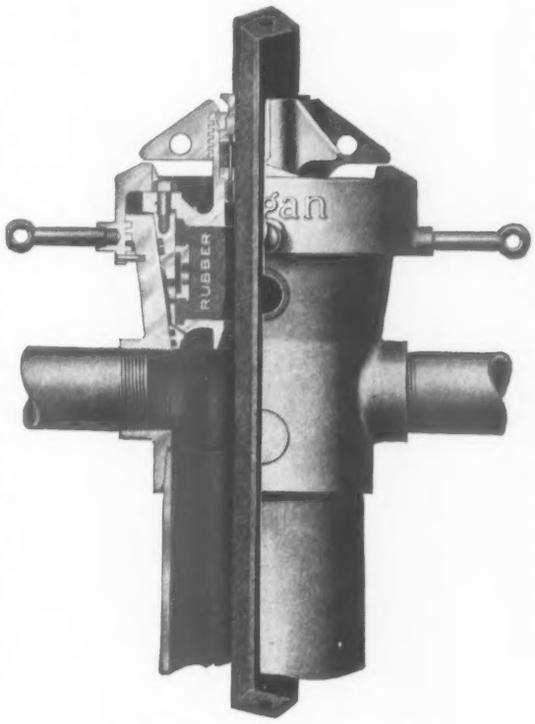
With this type of casing control installed, the danger of an unexpected blowout between the well casing and the outside of the drill pipe would be very slight. In the event that it should prove difficult, temporarily, to maintain the necessary fluid head due to loss of circulation returns, the lateral ports can be held closed until the plastic sealing mixture is pumped into the well through the drill pipe. After this has been done, the control valves can be manipulated so as to cause the release of the accumulated gas or oil in the casing above the mud fluid column, maintaining sufficient back pressure on the upward-moving column of mud-laden fluid in the casing to register additional flow resistance in increased poundage at the mud pump gauge over and above the normal pump pressure recorded while drilling with an unbroken column of mud fluid up to the mouth of well. In this way the mud pump pressure will be the greater factor exerted. This would avoid any lowering of casing pressure and resultant expansion through atomization of the mud fluid by the action of gas being permitted to escape from the productive zone and churning the circulating stream at the bottom of the hole.

Stem Free to Rotate

A unique advantage incorporated in the design of this type of casing control, is that the drill pipe can be rotated without disturbing the packing seal. This is an important factor under certain conditions, such as that which has been previously explained, and in the matter of circulating gassified mud fluid out of the hole under valve control, at the commencement of pulling operations. When either of such conditions is encountered, the drill pipe can be freely rotated during the circulating period, thus avoiding any channeling action of the fluid between the drill pipe and the wall of the hole, and minimizing the possibilities of caving formation or grit settling about the drill pipe string.

During the pulling cycle, the packing assembly is left in place on the kelly, which, in the event that any indication of premature flow is observed, is quickly hoisted and screwed into position onto the drill pipe remaining in the hole at the time. Should the time prove sufficient to complete this operation, the drill pipe is then lowered until the packing assembly is housed in place within the control body and the entire weight of the installed portion of the drill pipe string is exerted on the upper face of the packing assembly, employing the substitute on the upper end of the kelly as a retaining shoulder.

It is of the utmost importance that some type of casing control mechanism be installed, or immediately available for installation during pulling operations. An unexpected flow at such a time is not uncommon, due to the lowering of the mud fluid level in the casing caused by the removal of the drill pipe and the amount of mud necessary to occupy the space represented by the volumetric displacement of the drill pipe receding from the mud fluid column. The amount of fluid recession is equivalent to subtracting the square of the outside diameter of the drill pipe from the square of the inside diameter of the well casing. Therefore, in the matter of drilling deep holes with small diameter casing installed and but slight clearance between the drill pipe string and the inner casing wall, the blowout hazard while removing the drill pipe or through loss of circulating returns is appreciably increased.



Hydro-operated Casing Control

Single Stuffing Box Type

Another type of casing control employs the single stuffing box principle to effect a seal between the drill pipe and casing, having a steel hinged insert containing the packing rubber. The insert, when placed about the drill pipe, is locked in position by the action of a latch which automatically snaps into place. This affords quick installation and obviates any possibility of the packing insert becoming loosened while being lowered into the control body. In addition to this, the insert is equipped with two semi-circular spring ring sections set into a groove immediately below the upper face flange, and, when the packing assembly is dropped into position within the control body, the spring ring sections lock beneath an inner shoulder within the upper end of the hood, thereby retaining the packing insert in position until the necessary weight can be applied to expand the rubber.

The control body is similar in design to the one previously described, containing a tapered seat into which the lower conical portion of the insert is housed. As pressure is exerted downward upon the upper end of the insert, either by applying the weight of the drill pipe, or adjusting the hood, the rubber sleeve is expanded both inward about the drill pipe and outward in contact with the inner wall of the body. The body is equipped with two lateral ports for carrying on circulating and flowing operations. The hood of the device is loosely screwed onto the body and left in this position while drilling, as the packing unit is sufficiently smaller in diameter to permit it to readily pass through the bore in the hood.

In one design of this type of assembly, the packing insert is equipped with two casing slips situated above the rubber sleeve, so that the weight of the drill pipe can be transmitted to the upper end of the rubber without having to lower the string to a coupling or tool joint connection.

The principal object of this type of control, is to furnish a simple and positive means of effecting a seal between the drill pipe and casing, utilizing the weight of the drill pipe as an expanding medium in emergency cases, and supplementing this by screwing the hood downward against the packing insert as an additional precaution. As will readily be seen, the packing rubber in this type of control is installed only when conditions are such that it is deemed necessary to do so.

Packing By Hydraulics

The idea of applying the packing rubber about the drill pipe only when and as needed is included in the assembly of another design of casing control, the difference in this respect between the two types being that the latter control referred to is assembled and installed at all times with the main packing rubber in place within the body but not in contact with the kelly or drill pipe. When it is desired to pack off, the rubber is forced inward about the drill pipe by means of hydraulic pressure delivered from one of the mud pumps through a connection in the upper part of the control body, the mud fluid flowing into an annular recess formed midway on the outer wall of the packing rubber.

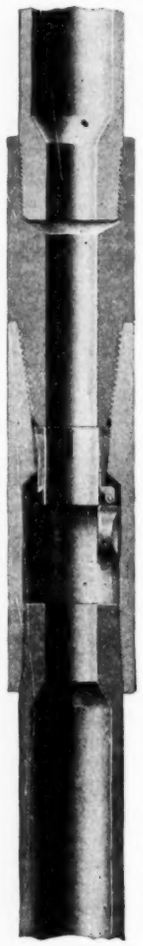
The main packing rubber forms part of a cone assembly which also includes a set of outer rubber packing rings to seal the cone within the body, and an upper adjustable stuffing box with

which the final and permanent seal is obtained. The upper stuffing box is coarsely threaded externally to accommodate the tapered-wing packing hood. The purpose of this wing design is to avoid unnecessary weight while at the same time presenting a downward tapered upper surface to facilitate the removal of the unit while entering and passing through the opening in the rotary table. Holes are bored through the wing portions for the insertion of a rod when adjusting the packing. The upper end of the central bore of the winged hood is somewhat smaller than the outside diameter of the split follower ring, and, when the split ring sections are placed in position above the packing inserts, a shoulder within the hood is forced downward against the follower ring as the hood is screwed onto the upper end of the packing cone assembly. Under ordinary drilling conditions, the split rubber-contained packing inserts and split follower ring which are furnished to fit within the upper stuffing box for packing off about either the kelly or drill pipe, are not installed, the hood being placed in position at such time merely to serve as a guide. This permits free rotatory and vertical movement of the drill pipe string within the stuffing box.

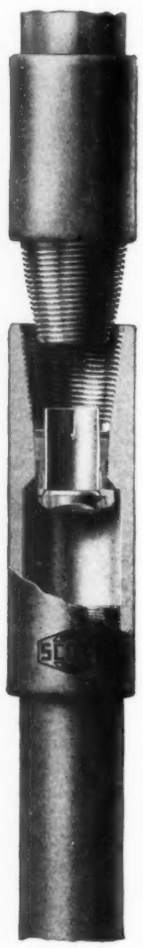
The flanged base of the upper stuffing box body forms the lock-plate above the main rubber. At the outer portion of the plate section are planed four notches, equally spaced about the circumference, leaving four sections of metal, equal in width to the planed notches, extending outward a sufficient distance to come under the inner shoulder of the hood. The flanged section is attached to the shell of the packing cone by means of set screws. The packing cone contains four rings of rubber on the outer side, the upper two rings and the lower ring being grooved on the under side and the third ring having a groove on the upper side. This arrangement is such that pressure applied in either direction is exerted on the concaved sides of the rubbers and tends to further the sealing action by increasing the expansion. The main packing rubber is housed within the cone body, and is readily forced inward when pressure is applied within the annular recess in the outer shell of the body, as previously explained. There is also a small by-pass outlet bored through the base of the packing cone, so that in the event of any unexpected increase in pressure, the outside of the packing rubber would in a short period of time, be subjected to the same pressure as that exerted within the packing bore. The main packing rubber is a strong corded flexible cone, and, when the necessary pressure is exerted within its outer recess, the internal bore is readily compressed to fit snugly about either the square kelly, drill pipe, or tool joints.

Body Description

The body of the hydro-operated control is tapered internally from its upper end downward to the elevation of the lateral discharge ports, to form a conical seat for the packing cone, and is fitted externally with a coarse acme-type thread on the upper flange. The upper shoulder of the body contains four inner slots opening into the bore, equally spaced, and of sufficient width and depth to receive the four metal extensions on the plate section of the packing cone assembly. A small doll pin is set horizontally into the outer wall of the body at the base of the coarse thread and, when the hood is screwed into place, is contacted by a vertical face planed within the hood at the starting point of its internal thread, thus serving as a stop pin for the hood when the latter has reached its maximum screwed-down position.



Inner Valve in drilling position



Inner Valve in pulling position

Four equally spaced slots are planed through the upper shoulder of the hood to permit the installation or removal of the packing cone while the hood is engaged to the body. The body is also equipped with two lateral ports situated at points diametrically opposite each other and at the same elevation as the annular recess formed about the outside of the packing cone. One of these ports is fitted to a line running from one of the mud pumps, while the other is connected to an outlet from the well casing by means of another threaded opening in the control body which is bored a short distance below the position occupied by the packing cone. A high pressure gate is installed between these two by-pass ports, for the purpose of quickly applying the pressure from the well if it should prove necessary to do so.

In assembling the control, the packing cone is inserted within the control body, the extensions on the outer rim of the plate section fitting into the slots within the upper end of the body. The hood is then screwed downward until it is within a short distance of the stop pin, in which position, the extensions on the face-plate are partly registered under the inner shoulder extensions of the hood. When and as the hood is turned beyond this point, the hood extensions are forced down tightly against the outer face-plate sections, the deflection of the coarse thread setting the packing cone into the body and effecting a fluid-tight seal between the outer wall of the packing cone and the control body, the locking action being similar to the operation of the mechanism in the breech of a large calibre gun. The upper winged hood is then screwed into place, functioning as a guide when the packing cone is removed to permit the bit to pass upward through the control body.

With the packing cone held tightly in position, drilling can be carried on without either the kelly or drill pipe coming in contact with the main packing rubber. Should the well show any indications of flowing, the valve on the mud pump line is quickly opened and mud fluid pressure built up around the outside of the main packing rubber, forcing it inward and securely packing off whatever portion of the drill pipe string is within the bore at the time. The gates on the circulating ports are then closed, and if the well pressure should build up beyond the operating pressure of the mud pump, the high pressure gate in the by-pass line is opened and the well pressure applied to assist in retaining the packoff seal. The upper winged hood is then removed and the split packing rubbers and follower placed within the stuffing box. The hood is again screwed into position, and the packing tightly adjusted to form a permanent packoff, in the event that the pressure in the well cannot be safely overcome, through failure to obtain circulation returns, or other causes.

Safety Control Valve

A safety device which is used in conjunction with any type of casing control, is a control valve which fits within the tool joint bore, and automatically closes off any flow from the drill pipe when the drill pipe string is being pulled from or lowered into the well.

The construction of this valve assembly is such that the valve proper is held in a wide-open position when the tool joint pin and box connections are

made up, and cannot be closed by pressure applied from either direction until the tool-joint pin is removed from the box, at which time, the valve is free to move upward and close against the seat, forming a fluid-tight barrier within the tool-joint bore.

The value of this automatic valve is in the fact that it in no way effects fluid circulation and cannot cause back pressure within the drill pipe, while, at the same time, it provides an automatic means of inner control when and as needed.

Inner Automatic Valve

As previously explained, it is not uncommon for a well to start flowing during pulling operations, due to the lowering of the mud fluid level; at such a time it is essential that the method employed to retain control of the fluid at the surface should be such that the installation can be completed in the least possible time. Therefore, any positive-acting automatic mechanism which can be applied represents a decided improvement over any device of like function which must be operated manually.

The inner automatic valve consists of a heavy outer sleeve, threaded externally to screw into a tapered thread which is turned within the box-end of the tool joint a short distance below the regular quick-tapered tool joint box thread. Two small pins are screwed horizontally into the wall of the outer sleeve near the upper end and at opposite points on its circumfrence, extending within the bore of the sleeve a distance equivalent to the thickness of the inner trip sleeve. The outer sleeve is threaded internally at the lower end to receive the valve-seat insert, to which is attached the hinged valve clapper.

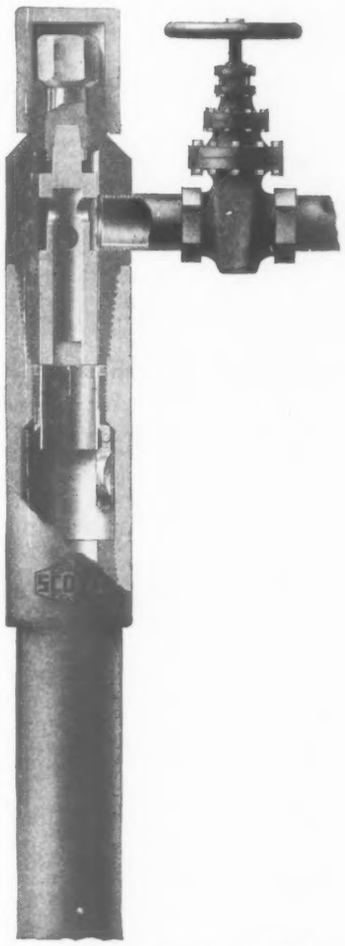
The inner trip sleeve contains two vertical slots milled near the upper end, to accommodate the horizontal pins which extend within the bore of the outer sleeve. The length of these slots is sufficient to permit the inner sleeve to be moved upward or downward within the outer sleeve, for the purpose of controlling the movement of the valve clapper.

The lower portion of the bevel which is ground on the upper rim of the valve clapper, forms the sealing surface with the valve seat when closed, while the upper part extends inward under the base of the inner trip sleeve, the angle of the bevel meeting the face of the valve clapper within the bore of the inner sleeve, so that as the inner sleeve is moved downward, the valve clapper is forced outward toward the inner wall of the tool joint and held rigidly in this position by the base of the inner sleeve being pressed against the upper portion of the ground bevel.

Automatic Compensation

Any variation in the downward traveling distance of the inner sleeve is automatically compensated for, as there is ample room for movement of the valve clapper within the tool-joint bore, and the bevelled surface can be forced outward until the proper relative position has been reached by the trip sleeve. A strong flat spring is attached to the base of the valve clapper, its only function being to force the clapper inward sufficiently, when in an operable position, to place it in the line of fluid flow, in the event that pressure should be exerted upward within the drill pipe while pulling operations are in progress.

When the valve assembly is installed within a tool joint, the tool-joint pin forces the inner trip sleeve downward



Connecting Assembly, installed

and retains the valve clapper in a wide-open position; the lower portion of the sleeve passes through the valve seat, thus obviating any fluid wear at the seat seal. This is the position of the valves while drilling. Upon the commencement of pulling operations, and immediately upon removing the kelly, the valve in the upper tool joint becomes automatically operable. As the stands are unscrewed, the valves installed in the tool-joint boxes from which the stands are disconnected are in position to function, thus protecting the well throughout the entire pulling cycle.

Should gas or fluid pressure close the upper valve, a special connecting assembly is then attached to the upper tool-joint box, for the purpose of either pumping mud fluid into the drill pipe or for placing the well on production, as desired.

Connecting Assembly

The connecting assembly is fitted with a standard tool-joint pin on the lower end to fit into the upper box. The bore of the pin is sufficiently large to permit screwing the pin into position without changing the position of the inner trip sleeve of the valve mechanism. Within the main vertical bore of the connecting assembly, a heavy adjusting sleeve is fitted. This adjusting sleeve has an annular groove turned about its outer circumference at a point opposite a lateral port threaded into the connecting body. Within the annular groove are four outlet holes which afford free fluid passage into or from the drill pipe when the sleeve is moved downward its maximum traveling distance. The upper portion of the sleeve is ground and fitted into the body, the tolerance being .001″, in order to maintain a fluid seal while the sleeve is being raised or lowered. The operation of the sleeve is accomplished by turning a hexagon crown bolt, the lower stem-portion of which is coarsely threaded to fit within the upper bore of the body. A ground bevelled inverted shoulder is turned on the base of the hexagon section of the crown bolt, which, when the sleeve is screwed to its lower position, is tightly seated within a ground seat situated within the upper face of the connecting body.

Installation

When installing the connecting assembly, the tool-joint pin is tightly screwed into place within the upper box of the drill pipe, with the hexagon crown bolt in its maximum upper position, after which the mud pump connections or flow line fittings are attached to the side outlet port in the connecting body. When the necessary fitting has been completed satisfactorily, the hexagon nut is screwed downward until its base has been tightly seated. The downward movement forces the adjusting sleeve against the inner trip sleeve of the valve assembly, lowering the position of the valve sleeve until the valve clapper is moved outward and the tool-joint bore is unrestricted. A heavy cap is then screwed onto the upper end of the connecting body, in order to safeguard against any accidental turning of the adjusting assembly.

In making the inner valve installation, with some effective type of casing control protecting the outer opening, it will readily be seen that such a combination would greatly minimize the blowout hazard and result in a substantial saving to the operator.

It might be further stated that whatever effort is put forth in the matter of preventing blowouts, is of the utmost importance to the oil industry, and, with respect to the investment involved, the cost of safety is but fractional when the results obtained are taken into consideration.

XUM

Heat Treatment *of* STEEL

By HARRY PENNINGTON

Mechanical Engineer, Member American Society for Steel Treating; Member American Society for Testing Materials

THIS article is not intended as a heat treater's guide, nor a treatise on heat treating, but is rather an insight into the reasons for heat treating, the objects sought and attained and the value of heat treating properly selected steels for definite purposes.

It is the intention to outline the heat treater's work in such way as to make it clear to the field, without technical usage; to show that heat treating is more of a practical art, and that with a grasp of heat treating principles and methods, the field engineer, the field superintendent, the driller, the tool dresser, the field smith, may distinguish between good and poor steel's application to definite uses—and between heat treatment and no heat treatment.

Once the value of heat treatment is understood, it becomes of inestimable benefit toward safety to life, safety to property, and toward economy in first cost and in the cost of using good steels correctly heat treated. The cost of a steel part is simply a service charge made up of its original cost and its maintenance during its useful life.

There is today no single steel adapted to all purposes, nor a single heat treatment that serves all purposes, hence it will be necessary to cover a wide range—the full range of steels—selecting a few of the outstanding grades for illustration, and to analyze the heat treatment required for bringing out the particular qualities necessary for a specific purpose.

Economic Significance

The economic significance of steel treating is tremendous, for the utility margin of steel has been widely increased. Only by heat treating have the vast automotive schedules of today been maintained at the astonishingly low costs prevailing. Part for part, costs are made considerably lower by weight reduction, together with reduction of surface areas requiring machining. At the same time, machining rates have been materially speeded by treating steel for good machining qualities as well as strength.

Great loads and speeds of railroad locomotives and cars are obtained with the best of steels and treatment. Railroad rails are more reliable and durable, setting upon lower transportation costs, offsetting rising labor costs somewhat. Aeroplane work, depending entirely upon the finest of treated steels, has developed in the course of a few years to a huge national necessity, both in time of peace and in time of war.

The high wage scales of America are due to the high production rates per man-day, for the new economics says that wages are limited only by production; production is limited only by the leisure available for utilizing production, and so on, wheel within wheel, productivity is the axis about which American industry revolves. And steel treating is equally as important in production as any other economic factor.

Several years ago, we purchased steel practically by weight alone. Today, exact specification of all its qualities, both physical and chemical, accompanies a purchase order in plants of the modern type. Even in non-ferrous alloys, the same practice prevails. A power plant engineer, for instance, demands microscopic photographs for condenser tubes today.

The Reason for Heat Treatment

Steel is basically made up of iron and carbon. When heated to sufficiently high temperature, steel is materially changed internally. When the changes wrought by heat are trapped in the steel by quenching, and thus fixed, its physical properties are altered enormously.

The temperature at which these changes are effected is the critical temperature at which carbon in steel combines with the iron to form carbides, or enters into solution—solid solution—with the ferrous content. Critical temperatures are indicated by derivatives from the French—Ac being the temperature at which carbon enters into solution when the steel is being heated. There may be several Ac temperatures in a steel, set up by carbon and alloying metals, but we are concerned with the upper critical temperature which is here simply termed Ac.

The Ar temperature is the lower critical temperature at which separation of the components of steel takes place, unless the structure obtained above Ac has been trapped in the steel by rapid cooling.

Ac temperature must be reached in order to change the physical properties of steel, as well as chemical, and when rapidly cooled, or quenched from above Ac, an entirely new steel results—a new composition with new properties. The difference is visually observable. An annealed steel is coarsely crystalline, perhaps fibrous in fracture; the same steel, with moderate carbon content, when heated to above Ac and quenched shows a fine velvety grain, greater homogeneity—the fineness depending upon the carbon content. The finer velvety steel is the strong steel of today.

Physical Changes

Physically, the steel changes also, the carbon content imparting a hardness to some degree depending upon the carbon content, as well as brittleness. But both hardness and brittleness may be removed by again heating, this time, to a point below Ac, which still leaves the velvet grain, however, and when then slowly cooled, steel is in its strongest condition for resisting sudden loads or shock.

The carbon and steel having been recombined at critical temperature, the steel is homogeneous, and the quenching bath fixes it in this condition. Drawing, the hardening strains are removed, reliability is set up, its physical qualities are materially improved, and it is found to possess additional freedom from fatigue or crystallization. It also possesses additional stiffness and rigidity, and while it will bend when overloaded, still it takes a permanent set only under severe overloads, springing back to shape under moderate loads. Overloaded beyond the elastic limit, it bends, but fractures only with difficulty.

These are the remarkable things imparted to steel by heat treatment, whether the steel is rolled, drawn, forged or cast to shape. Note, however, that the carbon content must be 30 points, or above, for below that point, steel takes on no great hardness, for steels below 30 carbon are mild steels.

Process Sequence

Heat treatment is commenced at the steel mill, for when poured into the ingot mold, the steel is a simple steel casting, coarsely crystalline. But by rolling or hammering, at temperatures above the critical, the coarse grain of the steel casting is broken up and refined. Rolling is done to effect a definite reduction in size, when the billet is re-heated and again rolled, and if the reduction of the billet is to small sizes of bars, still another heat may be made and still another rolling, followed by a normalizing heat when the steel is ready for making parts out of it.

A finished billet, for securing refinement of grain by rolling or hammering, must be reduced from an ingot in a definite percentage of size to secure sufficient working for grain refinement, which is a part of the steel maker's skill in determining the reduction necessary.

The consumer takes the steel and usually forges it to rough dimensions in one or more heats, depending upon the size of the piece, the intricacy of the forging and the speed at which the forging is done. Forging sets up internal strains in the steel—internal strains and hard spots, which are removed by heating to above critical temperature, and cooling slowly, or normalizing, when the steel is

again made homogeneous. Normalizing, which sets up uniform internal structure, also improves machining qualities.

The steel then may be machined, after which, to set up maximum physical qualities desired, it is again heated to above critical temperature and quenched, leaving it hard and brittle, but with fine grain. Following, the steel is again heated to a point below critical, however, to remove hardness and brittleness, leaving it in condition to resist the maximum load and shock. Or, when quenching sets up undesirable distortion, the rough forging may be normalized, heated to above Ac and then quenched and drawn, after which the hardness is sufficiently low to permit machining without heating again after the machine work is done.

Testing Hardness

The foregoing—as to whether the piece is to be machined after normalizing, or after full heat treatment—depends upon the physical qualities desired. If the hardness is to be greater than at which the part can be machined, as for instance, alloy steel gears, then the gear is machined after normalizing, and after machining, the full treatment is given.

But, if the quality of hardness is not desired, but strength against shock is required, the part is fully treated, when the final draw removes hardness, and the part can be machined and finished without further treatment. The latter method is employed in making the greater portion of treated steel parts, as for instance, crank shafts for multi-cylinder engines, connecting rods, links and so on.

In the heat treatment outlined, the efficacy of treatment is checked in various ways, principally by hardness, using one of the various hardness testers, such as the Brinell machine, the scleroscope and the Rockwell hardness tester. In quantity production, other tests may be made of a part out of each lot, to determine elastic and tensile strength, elongation, reduction and impact value. Accurate heat treating control secures uniformity in treatment and is necessary for the development of desired qualities, whether on a production basis or in a single piece.

If the part is to develop hardness, the final drawing temperature is fixed at such point as will furnish the required hardness. Since hardness depends upon carbon content, the minimum carbon content at which steel hardens being 0.25, the carbon content for hardness must be above 0.25, and may be as high as 1.50. The range of carbon for structural tool steels, however, is 0.60 carbon. Higher than that, tool steels are used for especial purposes, principally small parts, such as knives, cutters, files which require extreme hardness without great strength.

All plain carbon steels, steels which depend upon carbon for hardness, begin to lose hardness at about 200 F., and the degree of hardness desired may be secured by fixing the drawing temperature. Depending upon the steel somewhat, all machinable hardness is taken out of steel at temperatures from 600 F. on up to 1200 or 1300 F.

Then, as will now be seen, heat treatment is for the purpose of developing the properties desired, whether it be hardness, strength, impact value, or toughness. All these properties cannot be obtained, however, at the same time, and it is necessary therefore to balance the required quality against the undesirable qualities and proportion the one to the others.

For resistance to shock, a properly selected steel possesses reliability that can be obtained in no other way than heat treatment.

Object of Heat Treatment of Steel

Steel, whether treated or not, looks pretty much the same on the outside, but getting on the inside, with the aid of the microscope, the difference in steels is found to be immense. And making tests, the difference in strength, hardness, resistance to shock, resistance to abrasion or wear are found widely different.

Heat treatment is for the purpose of of bringing out the qualities desired in a steel. If it is to be used for sustaining load, heat treatment makes it hold the maximum load safely. If it is to be used for cutting purposes, heat treatment makes it cut many times more; if it is to be used for making a spring, the properly designed spring stands many more compressions without softening. If it is to be used for resisting wear, heat treatment imparts to it wearing qualities not had in any other way. If it is to be used for twisting, as in a shaft, heat treatment imparts to the steel, strength two to four times greater than can be had from untreated steels. If the steel must possess reliability, treatment imparts to it the safest qualities.

And, at the same time, the use of toughening and strengthening alloys of chromium, nickel, vanadium, manganese, molybdenum, requires heat treatment to bring out the qualities of these alloys, while the alloy, tungsten, which makes steel resist softening under red heats, requires heat treatment to bring out the desired qualities.

Heat treatment, as the term is used today, is a definite term. While the simple heating of steel in a coal fired forge is strictly speaking, heat treatment, still heat treatment today means the heating of steel up to definite temperature, quenching at definite cooling rates, and drawing at definite temperature, utilizing the critical temperature of the steel as a basis.

Avoid General Specifications

This is fundamental. Instead of using such terms, quench at a cherry red, or forge at a salmon heat, the steel treater ascertains the critical temperature of the steel and uses it as a basis for grain refinement, for, unless heated to critical temperature, the grain is not reformed, and if heated too far above critical, the fine grain begins to coarsen, which weakens internal structure.

When the furnace equipment permits observing the rate of heating as to time, the critical temperature may be obtained of the steel being heated, indicating the hardening temperature of the steel, without any knowledge of the composition of the steel.

Carbon, when added, lowers the critical temperature in a constant ratio with the increasing carbon content. Alloys elevate or lower critical temperature in a manner peculiar to each alloy—chromium elevating and nickel lowering. For instance, but when two alloys are used, such as chromium and nickel in the same steel, the change of critical temperature for the same carbon content is in still another manner.

Steels can be made by the mill with percentages of carbon and alloys only with a range—not with exactness. Carbon, for instance, has not yet been held in say S.A.E. 3250 steel, exactly at 0.50, but the steel maker is allowed a range from 0.45 to 0.55 carbon.

Separate Treatments

In the same way, chromium in the same steel, has a range of 0.90 to 1.25, so that the chromium content may be anywhere between these two figures.

And since this variation exists, and since the variation, particularly in carbon, changes the critical temperature, which controls the hardening temperature, when exact heat treatment is to be had, critical temperature is the basis of securing it.

Taking a piece of steel with definitely known analysis, placing it in the furnace equipped for indicating the critical temperature, secures the critical for that piece of steel only and no other steel except that which was made at the mill in the same heat.

Then, when treating steel, particularly where a number of grades are used, and when even running qualities are necessary, the method of using the critical temperature of the steel being treated secures uniformity and is safer and better, that is, when parts are too large to be treated in quantity, requiring the treatment of each part individually. In quantity production, in which steel from various heats but of the same grade are used, the basis necessarily is that of the highest Ac of the steel.

Naturally, it is not feasible to treat a 0.30 carbon and a 0.50 carbon steel at the same heat, and the two must, therefore, be treated separately, whether in single pieces or in quantity.

The writer has found that where untreated steel has been used over a period of years, its poor qualities, as well as its good, are taken as a matter of fact. But, when the same part is made of treated steels, properly selected for the duty, and better service is secured, particularly where sudden loads are found, the user immediately demands treated goods, and will have no other, although all of the details of just why the better service resulted may be a little bit hazy.

Sucker rods, for example. A field man —the production foreman—knows good

rods and will duplicate the brand of rod that does not part as frequently in the well.

Importance of Manufacture

Quality is placed in steel when it is made, for there is much more to steel than its chemical analysis. Even though two steels may show the same analysis, and the general process of manufacture may be the same, the difference in steels is in the making. One steel may be inherently coarse and brittle, while another of the same analysis may have the fine velvet grain so desirable for strength.

And while heat treatment improves all steels, still, if quality is to be maintained, that quality must be originally in the steel for heat treating to bring it out effectively.

We may wish a steel to withstand suddenly applied loads, or shock, as in a standard tool drill stem, or in a jaw clutch;—to withstand heavy loads slowly and intermittently applied, as in elevator links, or in wire rope,—to withstand abrasion, or the cutting of formations with minimum of wear, as in fish tail bits,—to withstand wear as well as shock and load, as in rotary pipe slips or drive chain,—to withstand torsion and bending as in drill pipe, a drum shaft or bull wheel shaft. There are multitudinous requirements, and the selection of heat treated steel can be such as will secure the required qualities with longer service and safer.

Unless steel is to be treated, it is best to leave the higher carbon and alloy steels alone, particularly the alloys, because these steels are safe only when heat treated.

In the parts that, due to deeper wells, have become so excessively large, as for instance, the new eight-inch and nine-inch diameter drum shafts of the big rotary rig of today, that their size alone does not secure proportionate strength due to the fact that such large pieces are impossible of forging without internal strains, and frequently, have internal flaws, the heat treatment penetration in massive sections has not yet been done to reach to the center, but instead, forms a skin from 1½ to 2½ inches thick, around the exterior, with an untreated interior. The remedy is hollow boring, to secure penetration.

These large shafts, and other similar large pieces, used as forged, invariably have internal forging strains; when heated slightly. For instance, when running in a bearing, such heat may relieve these strains and cause a permanent bend in the shaft, requiring replacement. Even keyseating relieves internal forging strains, and the shaft will crook permanently before being placed into use. Treating relieves these strains and the shaft may heat without bending, or take keyseats at will, without changing shape. In all such parts, forging strains are removed only by heating to above critical temperature, whether the shaft is to be used untreated, or whether it is then to be quenched and drawn.

In the design of such large parts, the exclusion of the alloys of steel means that the size is far greater for definite strength than if alloy steels are used in heat treated condition. For instance, a low carbon steel develops tensile strength, in standard size test pieces — 1½" in diameter — of 80,000 pounds per square inch, and a yield point of 60,000 pounds, while a treated alloy steel develops two to four times as much strength for the same size, so that for developing specfied strength, the size may be materially reduced, with lower costs for the steel and for fabrication and with greater reliability.

For developing a given strength, a treated piece, treated and machined ready for use, usually costs less than the heavier untreated piece for, in addition to the weight of the steel, there is the additional forging cost, which is usually computed on a pound basis, and there is also the machining of the greater surfaces of the larger piece.

The deeper wells of today have called for great strength in drilling equipment. A deep hole rotary rig of today costs 15 to 20 times as much as the rig of 20 years ago, but weight alone does not add strength in like proportion. The writer will endeavor to show that hugeness in itself is a mistaken idea when used for securing strength without reference to quality.

Take for example the steering knuckle on a five ton truck — an important part upon which the safety of the driver depends at all times, as well as others on the road, in addition to the automotive equipment itself. That one piece, considered by itself, must possess the maximum strength against shock. To make it of low carbon steel means that its yield point is about 35,000 pounds per square inch, so that its size must be approximately twice that of a treated piece. To make it of higher carbon steel, for securing strength, means that treatment is necessary, for higher carbon steels are unsuitable without treatment. In low carbon steel. the cost of the steel, of forging and machining the larger piece would add materially to the cost and weight, and if the truck were made throughout of low carbon steels, its weight would be excessive and the cost far higher, compared with the best automotive practice of today.

To make such piece, in the light of present heat treating practice, the designing engineer would select an alloy steel to make the best, although a few manufacturers make the knuckles of high carbon steel, without alloying elements. An alloy steel for the purpose would, in the best grade, have an analysis of approximately the following:

S. A. E. 3145. .40 to .50 carbon, for securing the fine velvet grain for strength;

.50 to .80 chromium for toughness and stiffness;

1.00 to 1.50 neckel for freedom from distortion, coupled with additional strength against shock;

And the manganese content would be .70, which in addition to setting up desirable properties in the steel, is necessary for manufacture in the furnace.

Sulphur and phosphorus would be held below .045 to eliminate red shortness and other defects due to these two elements.

Treatment of such part would be as follows:

Forging under the hammer at temperature from 2200 F. down to 1800 F.;

Cooling in air;

Heating to temperature slightly above critical point, to remove forging strains and to set up homogeneity and uniformity of interior structure, followed by slowly cooling;

Heating again to slightly above critical, to form carbides, which, when cooled rapidly, or quenched, sets up the finest grain of the steel. The steel will then be hard and brittle, the removal of both of which is accomplished by drawing, or tempering at a temperature below critical, which does not enlarge the grain secured in quenching. For this steel and for the purpose, this drawing temperature is 1150 F.

The hardness will now be between 220 and 250 Brinell, at which the part may be readily machined, and then used without further treatment.

The strength will now be found at:

Tensile strength, 125,000 pounds per square inch; yield point, 105,000 pounds; impact value, Izod, 55 foot pounds; reduction of area, 55 per cent.

Thus, its strength against load is 60 tons per square inch and its impact value or resistance to shock is high. By comparison, a fish tail bit may be run safely at as low as 18 Izod, although hammering the point at this value may break it off, but running the hole seldom does.

Automotive axles and shafts take the same heat treatment made of the same steel; who would go back to the axles and shafts of 15 years ago?

The foregoing heat treatment may sound intricate but it is not, and neither is it expensive to do. Nor is the steel itself so expensive.

It is only by the most intensive research into steels and heat treatment that America, and the world, has been able to go as far in mechanical equipment of all kinds, and in automotive work.

When 508 pounds of Wright Whirlwind motor, designed by Lawrence, can lift a load of 5200 pounds, and carry it all the way across the Atlantic, the "We" of Lindbergh is apparent, for "We" included the maker of the steels, the treaters who put it through the furnaces, the inspectors, the engineers — literally "We" included over 100 of the best there is in the engineering world of steel makers and steel treaters.

The crankshaft, for instance, is a piece of steel meticulously designed and made; the connecting rods, camshaft, ball bearings, valves — each piece must and did have the reliability necessary to make over four million revolutions in 33½ hours, at high speed, without even a sign of failure. A total of sixty or seventy thousand miles was made with this engine, without failure, before it was placed in the Smithsonian Institute, as today's example of extreme mechanical reliability.

Can the oil industry fail to gather a lesson from this and fail to use the things most vital to safety and economy?

(To be continued)

View of a Modern Carbon Black Plant. Photo courtesy of Godfrey L. Cabot, Inc.

Progress in Carbon Black Manufacture

By H. L. KAUFFMAN

ONE of the most important by-products of natural gas is carbon black, especially in isolated fields where there is no market for the gas itself.

Carbon black is a fluffy, velvety, black pigment made by burning natural gas with insufficient air. Although this product has been in use for about 50 years, it would still be comparatively unknown to all except ink manufacturers had it not been for the discovery of its use in rubber in 1915. The carbon black industry owes its early existence to the printing press, but its recent growth and present economic status is due to the rubber industry.

The past 10 years has seen the average yield of carbon black per 1000 cubic feet of gas increase from about 0.8-0.9 pounds to approximately 1.4-1.5 pounds. What improvements or changes in the carbon black manufacturing process have been made, to result in such increased yields? To answer that question, and others related thereto, is the primary purpose of this article.

Channel Process

Most carbon black is made by the channel process, which consists in the use of steel channels carried on trucks above gas flames burning from lava tips. The lava tips are fitted so that they burn without sufficient air, giving a yellow smoky flame. This flame impinges upon the bottom of the channel bars, which are moving slowly so as to present a cool surface to the flame. The channel bars are usually about seven inches wide and weigh about 12 pounds per foot. Scrapers are adjusted to the bottom of the channels to take off the carbon as collected. The carbon falls as the channel passes over the scraper and is conveyed to the packing department.

Although the channel process of today is not very different from the channel process of 10 years ago, much larger plants are being built now than formerly and the plants are arranged in larger units. One company in Texas, for example, is now manufacturing approximately 80,000 pounds daily at a single plant. Great savings have also been effected in the cost of constructing plants by building larger "hot" buildings and using electric welding in their erection, thus eliminating most of the fabrication work.

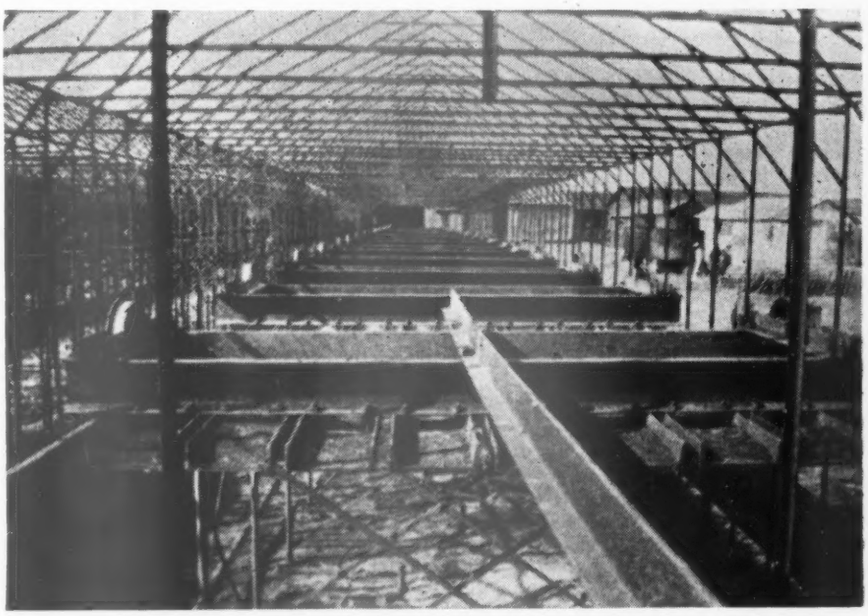
The standard carbon black unit consists of 32 to 34 burner buildings, approximately 120 feet long, with eight rows of eight-inch channels per building. However, as previously mentioned, buildings are being made larger, for example, 10 and 12 channels wide by 140 feet long, and even bigger.

More efficient tip design, better knowledge of ventilation and more intelligence in operation due to the concentration of production in larger units are among the developments resulting in greater yields of carbon black than heretofore.

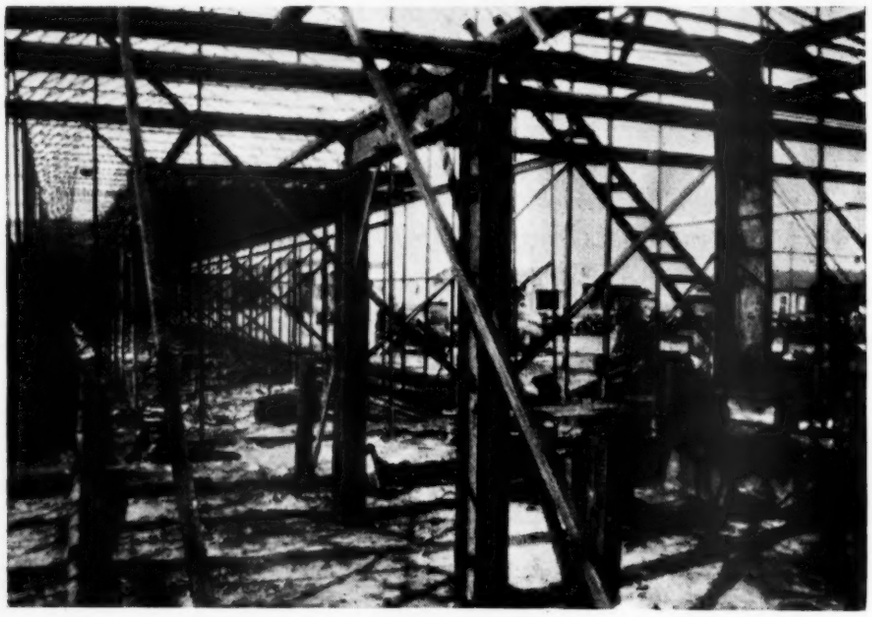
Mechanical Drafting

The whole process of making carbon black depends upon proper drafting, upon constant gas pressure at the tip opening and also upon constant temperature at the point of blaze contact. Automatic temperature controls, flow meters and draft gauges have aided materially in increasing plant yields.

One company has found that by decreasing the top draft in each hot house and offsetting with bottom draft, they are able to maintain a higher and more uniform production, particularly in wet and rainy weather. Outside building construction is also being so improved that weather conditions do not effect the process as much as they did formerly. By



Top side of a table of channels with pull bar attached. Plant of Southern Carbon Company



Underside of a table of channels against which the carbon is deposited, then scraped off into hoppers and conveyed to the bolting room

making the eaves in the roof of the hot house absolutely tight, a number of operators have found that they are able to better their conditions during windy weather.

Gas regulation, operation of the plant under steadier control conditions, more use of mechanical drafting—each is playing its part in producing a larger quantity of carbon black from a unit volume of gas than ever before.

Improvements in Tip Design

Due to the relatively high price of the finished product, very little stress was exerted toward improving the efficiency of the plants built during the period from about 1915 to 1920. Often at that time the process consisted merely in burning gas against wide channels using perforated pipe instead of our modern lava tips. Since then, however, the channel table has been so designed as to utilize the greatest percentage of area for depositing carbon black per cubic foot of gas burned. This, and the development of efficient lava tips, has been another factor of importance in obtaining higher yields.

Although some plants still use "10-foot tips," and get good results, the tendency in recent years has been to use tips burning 20 cubic feet of gas.

Use of Pulverizer for Elimination of Grit

One carbon black manufacturer has been able to add materially to his production by the use of a special pulverizer for the elimination of grit. This machine ordinarily requires only about three horsepower to handle approximately 7000 pounds of carbon black per 24 hours, and now does the work that formerly required four pan-type bolters of the rotating type, the carbon black being put through the screen in these pan bolters by means of wire, fibre or bristle brushes. This pulverizer has done away with the human element required with the use of the pan bolter to clean them every so many hours. The company using this pulverizer has found that it has added materilly to the net recovery of production by the elimination of waste black which was lost through cleaning of the old type bolters and through leaks. With this pulverizer the entire system is almost dust-proof.

Use of Pneumatic Conveyors and Air Separators

Conveying carbon black pneumatically from the time it enters the packing house —to which point it is transferred by mechanical conveyor screws—until it reaches the bin immediately over the packer, has been another major development in the manufacturing process. This method of conveying is used with an air separator for the removal of grit. Its advantage lies in the fact that thereby are eliminated elevators and other devices, all of which require constant repair, and a product is obtained far more free from grit than is possible with the ordinary brush bolter.

In other words, carbon black passing through a pneumatic air bolter is practically grit free, provided screens of the proper mesh are used in the bolter. Such black is therefore superior to black which is bolted through the brush and pan type bolter, in which type the brushes have a tendency to grind up the particles of grit and to force them through the screen instead of eliminating the impurities; consequently, the efficiency of the pan bolter depends entirely upon the frequency of cleaning. Such bolters are cleaned by hand by removing the pans. This means an interruption in the process, which is expensive; further, the cleaning of the bolters is very obnoxious to the workmen.

The Cassell air bolter, which is a type of air separator on which patent has recently been issued, and referred to previously herein (though not by name), is continuous in operation and, in use, eliminates the grit automatically. Many of these air bolters have been in continuous operation for as long as four months at a time without being opened up for hand cleaning.

Concerning this type of grit-separating device, the executive of one large carbon black manufacturing company says, "It represents the greatest single improvement in channel plant design and operation during the past 10 years."

Cleaner Installations

New methods for collecting carbon from flue gasses has, in the experience of some manufacturers, produced a higher ultimate recovery. Several companies have installed fans and oil washers for exhausting the carbon from the houses and then removing the carbon from the gasses.

In seeking information as to whether or not this was a paying proposition, the writer was told by an equipment manufacturer:

"Off-hand we could not say if it really pays to install the washers for collecting the carbon unless there was some particular industry that can use the carbon with a small amount of oil in it, which of course is what you have after the carbon has come from the washer and has gone through the filter. However, one thing we will say and that is that with a system of fans exhausting from the top part of the burner houses, you can concentrate the smoke and make a much cleaner installation."

Incidentally, it might be mentioned that vacuum sweeping methods have been used in a number of places for collecting carbon black from floors, walls, around machinery, etc., as a means of improving working conditions.

Source of Power

Most existing carbon black plants use a separate power source for each unit, that is, a gas engine or gas pressure-driven steam engine (located near the packing house) driving the whole unit through shafts, chains and belts. The more modern plants, however, such as those recently built in the Texas Panhandle, are driven wholly by electric motors, a separate motor being used for each part of the operation.

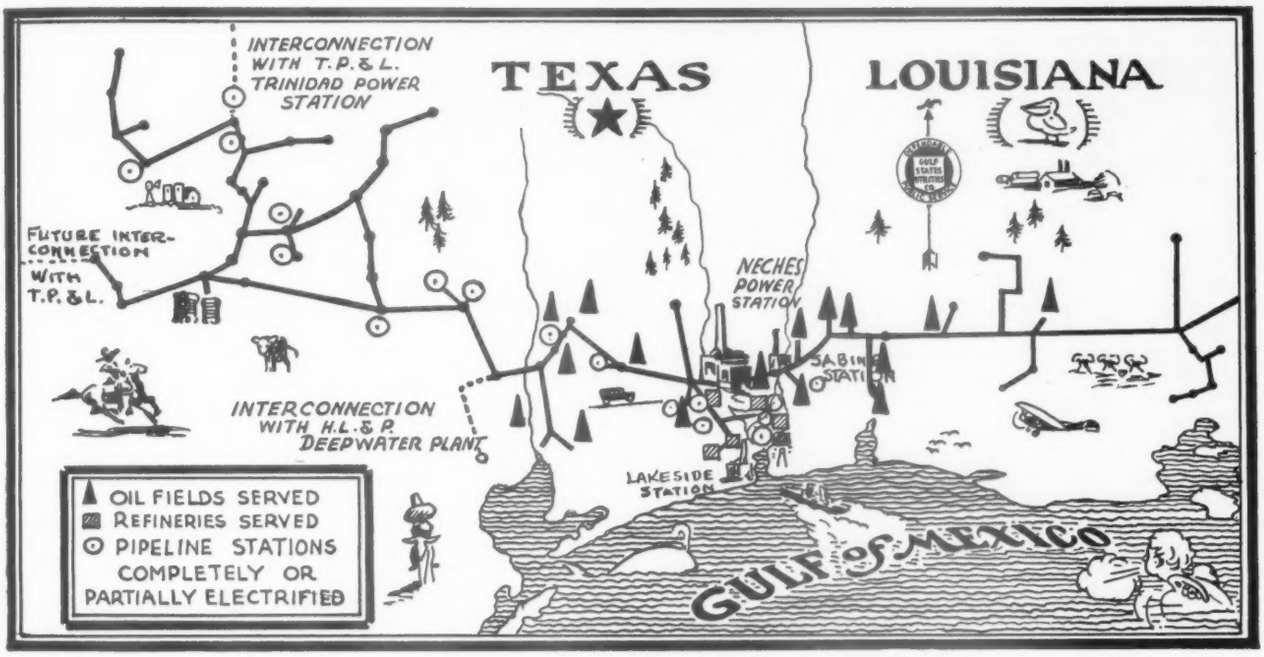
One company, to the writer's knowledge, is using a central power station to operate two units, but the usual practice is to operate each unit with a separate prime mover. A unit consists of a packing house, bolter room, and from 20 to 50 burner buildings.

Where the gas pressure is sufficiently high, a D-slide valve engine operated by gas pressure is used, the gas being preheated to prevent freezing in the cylinders. The discharge from these engines goes through a drip that eliminates the pulsation of the gas which, in turn, is transmitted to the main gas header and burned in the carbon black house. Where low gas pressure is encountered, internal combustion engines are used and these, too, are run on natural gas.

The General Atlas Chemical Company

(Continued on page 71)

ELECTRIC POWER PREFERRED



The use of Central Station Electric Power has steadily increased and a number of extensions to the present system are planned to serve the industry even more completely in this territory.

Gulf States Utilities Company

Beaumont, Texas Lake Charles, La.

UNDER EXECUTIVE MANAGEMENT OF STONE & WEBSTER INC.

EARLY PROBLEMS OF
Marketing *and* Transportation
Were Overcome as They Developed

By GEORGE REID
Staff Representative

A MARKET for petroleum was non-existant prior to the development of outlets for illuminants and lubricants by the pioneer operators who traveled from the oil region to such cities as New York, Pittsburgh, Chicago and to Europe and literally made their market by a tedious process of educating both dealers and a skeptical public.

Petroleum apparently was transported at first in small bottles many years before Mr. Keir of Pittsburgh, began its exploitation through pharmaceutical retail stores as a medicant. Along Oil Creek it was found in almost every house, usually setting about in discarded broken lipped pitchers or discarded to tea pots, which receptacles were replenished when necessary; from the oil springs.

Probably the earliest dealer in oil which we have record of was a Mr. Cary, one of the first settlers along Oil Creek who was enterprising enough to collect a cargo of oil from springs and take it to Pittsburgh where he exchanged it for the needs of his family. With two five-gallon jugs slung on a horse, he traveled 70 or 80 miles to create his market. Historians fail to mention definite dates in the matter of this first dealer's exploits, but it required boldness to cut loose from old habits and transport 10 gallons of oil to Pittsburgh on horseback.

In later years, General Hays, who settled in Franklin in 1803, no doubt culminated the first corner in petroleum. The general relates that at one time he purchased the entire product of the region, amounting to 16 barrels, and he sold this entire amount in Pittsburgh for about one dollar per gallon.

Barrel Shipments

Oil trade with New York was developed in 1860 through the efforts of William H. Abbot. After the completion of the Barnsdall well, in February of 1860, which was the second oil well, Mr. Abbot went to New York for the purpose of making a market for crude petroleum. Here he met George M. Mowbray, chemist, and through him obtained introduction to the drug and chemical house of Shefflin Brothers. This concern agreed to take 200 barrels of petroleum at a price of 35 cents per gallon, delivered at New York.

Little, if any, profit was made on the deal, despite the sales price of $14.70 per barrel. The barrels used were old oil barrels, turpentine, molasses and whiskey barrels, and a few new ones. They leaked from one-fourth to one-third of their contents,—much to the disgust of the teamsters and the railroads. The empty barrels were teamed to the Barnsdall well, filled, and sent across country a distance of 22 miles by team, to Union, on the Atlantic and Great Western Railway. Teaming cost at that time was 75 cents to $1.25 per barrel, depending upon the condition of the roads. Railway charges to New York were $1.65 per barrel, so the total cost of shipment can be roughly estimated at $4.00 per barrel—or $800.00.

Based upon its price about $1,000 worth of oil was spilled or leaked out of the total shipment of 200 barrels, having an aggregate valuation of $2940.00. Adding the freightage, we then have a possible profit of $1140.00, which may or may not have been made at the beginning of the oil trade with New York. However, Shefflin Brothers' experiments with the oil satisfactorily proved its adaptation to illuminating work, and subsequent shipments in tighter containers, proved more profitable than the first.

The year 1861 saw the beginning of oil exports, and the European market brought about a reasonable increase in consumption. Exports of petroleum to Europe, which started in October, 1861, totalled 27,812 barrels for the year.

With outlets established in the east and foreign trade assuming importance, and such metropolitan districts as Pittsburgh, Philadelphia and Cleveland receiving regular shipments of petroleum, operators turned their attention to what was then the far west. In 1863, J. L. Grandin determined to attempt the introduction of the new illuminant into the Chicago territory. Partly as a speculative operation, but mainly for the purpose of introducing refined oil to the western dealers, and consumers, 130 barrels of oil, refined at Irvington, Pennsylvania, was shipped to Chicago and Mr. Grandin journeyed there to attend to its sale. Here he found much difficulty and prejudices, resulting from lack of knowledge of this new illuminant, and no arguments, proofs, or suggestions were of value for some time. Finally he succeeded in interesting two dealers in its sale, but the speculation was without great profit. It did, however, serve to introduce the new lighting fluid to the people of the west and later opened up one of the best markets for its distribution.

Boom Goes Boom!

In the winter of 1866-1867 the sheriff of Venango County began to weild his hammer over the properties of defunct oil companies. It is estimated by various writers that the first five or six years of oil company operation in the restricted district known as the oil region, saw the capitalization of stock companies totalling $600,000,000. The old time prospectus of both bonafide and fraudulent oil promotion schemes are strikingly similar to the modern promise of great riches, which the public has been so often warned against. It is estimated that approximately $100,000,000 in capital was spent in the purchase and development of good and bad oil land. Then came the collapse.

Fires and floods in the oil region contributed to the debacle, and it was further abetted by currency troubles after the war, and generally bad business conditions. Thus, the sheriff's hammer rose and fell with high frequency, and thousands of acres of land owned by defunct companies, scores of engines, great quantities of machinery in Venango County, were sold for debts and taxes. Engines, for example, costing $2,500 to $3,000 were auctioned for $25 to $50. Such were the sacrifices.

Shortly the business righted itself. With the widespread usage of the new illuminating fluid and with the development of a greater market for lubricants, and the growth of the refining industry, came stabilization. The marketing of oil began to attract men to the oil region who formed connections with both producer and refiner and acted as brokers.

Brokers

In 1868 brokerage was started by a few individuals, and for some time was chiefly confined to buying and selling for refineries in Pittsburgh, Philadelphia and Baltimore. In most cases brokers were paid a commission of 10 cents by the buyers, and some times, when the seller would pay five cents, the commissions then totaled 15 cents per barrel. First, oil brokerage, was a matter of experiment, but soon attained the attention of other men and the business expanded, and the whole thing was placed on a legitimate basis by the firmation of brokers boards in cities where heaviest trade was carried on—and with these came the establishment of regular rates for brokers.

In 1869, it will be recalled, Erie "cornered" the market, and by large transactions in crude on the Creek, influenced the refined markets of New York and Cleveland, thus bringing them in as extensive buyers and opening these impor-

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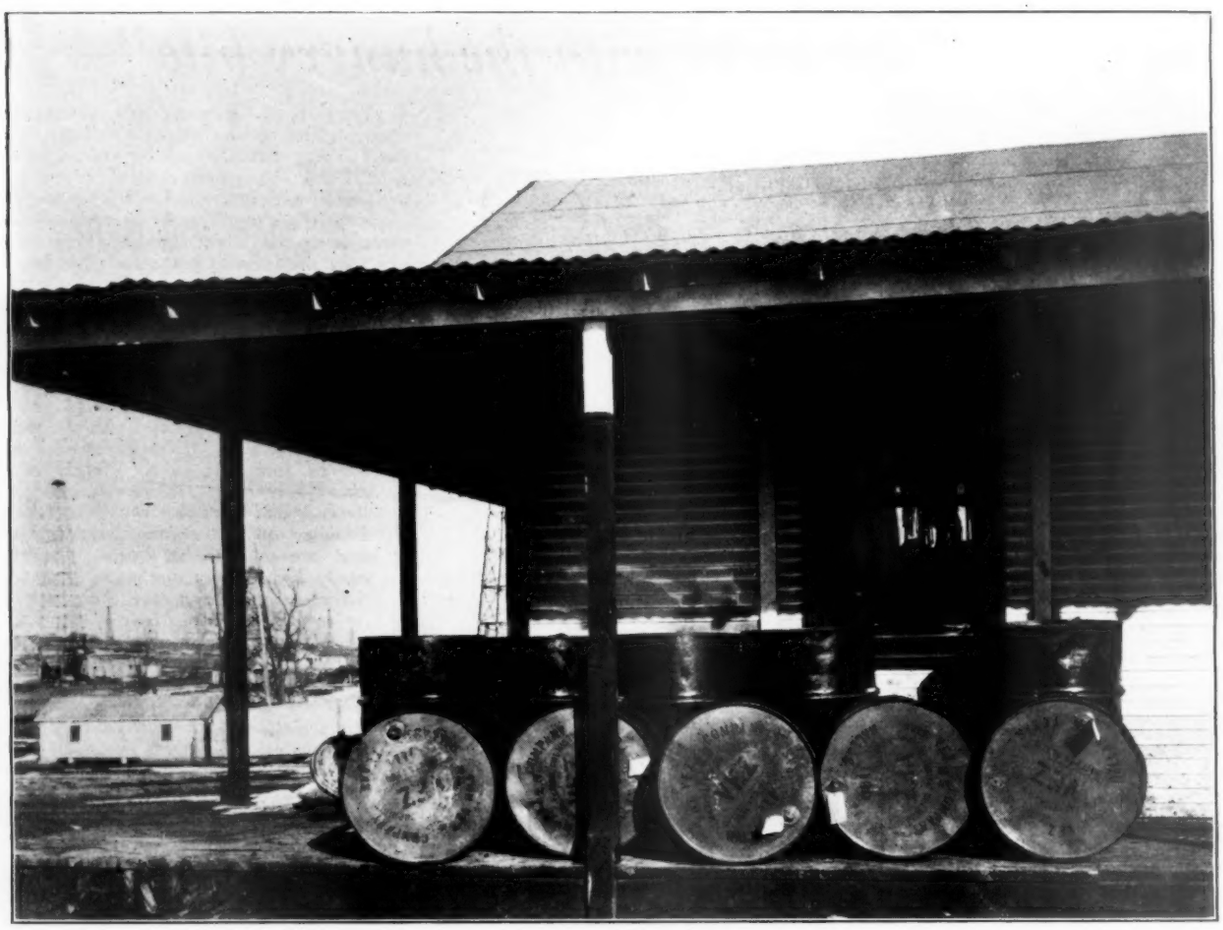

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BIG SPRING, TEXAS
WINK, TEXAS
PAMPA, TEXAS
BENAVIDES, TEXAS
EL DORADO, ARKANSAS
SEAL BEACH, CALIFORNIA

tant points also, to the brokers. After this experience the brokers assumed a more important position in commercial circles.

Something of the broker, as an oil man, and his business, enterprise and profits, is entertainingly told by J. T. Henry writing in his book, "Petroleum, and Biographical Sketches"—1873:

"Brokers are, by the nature of their business, very closely connected. Each has his correspondent "on the Creek," and elsewhere, with whom he shares his profits, and it often happens that each broker is obliged to call in the oil of another, till the commission is so divided and sub-divided that it will hardly pay the telegraph bills of the different parties. In fact, brokerage is a hard-worked and poorly-paid profession, and yet there is an excitement about it that forms a great attraction. The men are a jolly, jovial set, free and generous with their money and kind offices, and as their's is a business where much is of necessity left to their honor, each man takes pride in keeping his word on an equal footing with his bond. During 1871, by the exertions of prominent men identified with the trade, regular exchanges were established both in Titusville and Oil City.

The Barrel Established

It was along in the early days of the industry, when great wells were flowing, markets were limited, and no precedents were known regarding contracts and sales agreements, that the courts had to determine the question of "when is a bar'l not a bar'l?" The story is often told, and many old timers will recall the incident, of the long time contract between Funk and Dean. When the large flowing wells on the Funk farm and the lower McIlhenney place were struck, including such as the old Empire, the Fountain well, etc. Mr. Funk, Senior, contracted to deliver to Chas. A. Dean, Cleveland, Ohio, 100 barrels of oil per day at 40 cents per barrel for a period of five years. For two years this contract was fulfilled. Then it is said, larger and larger barrels began arriving at the Funk wells for filling,—"bigger and better barrels" was the order of the day, and not the regular accepted and customary barrel of 40 to 42 gallons capacity. It is said that casks, tierces, and almost hogsheads holding, 50, 60 and even 65 gallons, began to come for filling, and were demanded to be counted as barrels. This, historians term, as "extraordinary craftiness," and at first it was mildly protested by A. P. Funk, then in charge of his father's affairs,—and he finally flatly refused to submit. It was then that the courts had to decide just what was a barrel of oil. Probably this marks the beginning of the oil man's 42 gallon barrel, for the contract was declared forfeited and the Funks were relieved of the obligation.

Something of the early price history of the gallon, or barrel of oil may be of interest here. The first oil from the Drake well, sold by the Pennsylvania Rock Oil Company, in 1859, brought 50 cents per gallon. By July, 1860, it had declined to seven cents per gallon—for there was no market. Oil then advanced to 25 cents per gallon until around January 1, 1861. On March 1 it was 15 cents and by the summer of 1861 it fell to five cents per gallon. In January, 1868, we find it quoted at $2.00 to $2.15 per barrel, rising to $5.00 in June, and in January, 1869, the price was $5.00 and $6.00 per barrel.

Refining Introduced

With the flood of crude petroleum and the subsequent search for market outlets, came the application of distillation methods, or refining, to oil, for the preparation of illuminating oil to compete with coal oil in that market, and the utilization of lubricating stocks for oiling purposes which would ultimately replace animal and vegetable oils in that work. As the ever widening petroleum markets grew, so expanded the manufacturing branch of the industry.

The advent of the oil industry did not give rise to a new industry of manufacture, as is some times thought, nor did it bring about the perfection of any new processes or methods previously not practiced. Methods in oil refining in the early days came from the much older coal oil refiners, established manufacturers of coal oil, derived from coal. Then again, oil was simply "boiled." The practical refined oil of those days was "slightly heated, boiled, for the purpose of ridding it of its smoke, its offensive smell, and to render it non-explosive."

The new branch of the petroleum industry which refining oil for illuminating purposes, was created during the first eight years, and in 1869 it employed a capital investment estimated at 30 to 40 millions of dollars and requiring several thousand operatives and laborers. This young industry was recovering from crude oil, and did so until the automobile brought about a brisk demand for gasoline, around 60 to 70 per cent. of the kerosene-discarding the lighter fractions as worthless, and often finding little other use for its residues, than to burn them. It was some years before the market for lubricants could absorb the industry's inevitable production of them. Some of these early plants are mentioned as vast in their proportions, for they could refine from 500 to 3000 barrels of oil per week.

Many persons lay claim to having been the first to introduce refined petroleum for public consumption. However, best evidence points to Samuel M. Keir, of Pittsburgh, and he can no doubt be credited with its earliest utilization for public use as an illuminator. Mr. Keir gave it his attention as early as 1849. As he was extensively engaged in boring salt wells at Tarentum, Allegheny County, a few miles above Pittsburgh, and he obtained an appreciable quantity of petroleum from his wells concurrent with the production of salt water.

A sample of this oil was given a chemist, who reported favorably upon its use as an illuminator, provided a suitable lamp could be designed. The lamp was soon supplied. Mr. Keir erected a small refinery, of 50 barrels capacity, it is recorded, and started the manufacture of kerosene, or coal oil. From 1850 to 1855 this small plant handled all of the petroleum from Keir's and neighboring salt wells, and the "coal oil" and the lamps for burning it, was marketed from his refinery. The price ranged from $1.00 to $1.50 per gallon. A large number of refineries were in operation preparing coal oil from coal before this time, so the advent of the petroleum producing industry resulted only in the adaptation of this equipment to the distillation of oil and the refinery, even for oil, ante-dated the Drake well by several years.

In the fall of 1860, William H. Abbott, associated with James Parker and William Barnsdall, began the erection of what is believed to be the first oil refinery in the oil region. Work on this plant started November 6, 1860 and the fires were lighted January 22, 1861. The cost of this enterprise was $15,000. It is said that the first batch of crude cost $10.00 per barrel, and that before this oil was put on the market and proceeds realized from it, crude oil could be bought for $2.00 to $2.50 per barrel,—so the early refiners had their crude price problems, just as all refiners since that day. However, the plant, it is recorded, showed a fair profit for three years. All of the plant equipment, stills, pumps, pipe, brick, etc., was hauled to the plant site in wagons from Oil City and Franklin, being brought to those points by river from Pittsburgh and then hauled for 20 to 25 miles over typical oil field roads. Crude kept dropping in price and by March and April of the same year, oil was being delivered to the plant at $1.25 per barrel. Many more refineries were almost immediately financed and erected in the oil region, and this district was the oil industry's first manufacturing center.

Pipe Lines

With the perfection and erection of steel tanks, and longer lead lines from wells, loading and unloading racks, to these storage reservoirs, came the inevitable suggestion of transporting oil by pipe line. The story of the teamster and his wrath, and the ultimate annihilation (as one writer puts it) of the teamster, is too well known to be revived here. The "hauler of oil" stood in the way of progress, and his replacement was inevitable. The short pipe lines had to come in the early days to pave the way for the transcontinental lines of the present day.

The difficulties of conveying oil by teams contributed to the early attempt to use wrought iron pipe for the purpose. In the many volumes of petroleum history there must be a half dozen "first pipe lines." Some of them, however, agree that Samuel Van Syckle, Titusville, was the first to reduce the idea to actual and successful practice. His line, four miles in length, was put down in 1865, extending from Pit Hole to the railway at Miller's Farm. This was received with many doubts and misgivings, but after a variety of changing fortunes worked its way into public favor and was a success.

(Continued on page 70)

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RELEASING OVERSHOT

Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

Production Rise and Consumption Decline Endanger Crude Price

PRODUCTION records are being broken with the same frequency and even greater regularity than are those of endurance flights in airplanes. With each succeeding new record the stability of the crude market becomes less existent, and with the approach of the end of most active gasoline demand in the offing while the output of crude continues to mount, even the most optimistic are pursuaded that a cut in prices impends. Eastern States prices are no longer a criterion, but a cut of 25 cents per barrel announced for all Pennsylvania grades on August 1 has its significance just at this time.

HOW LAST WEEK'S DAIY AVERAGE PRODUCTION COMPARES WITH AVERAGE OF 1928

	Daily Av'ge Year 1928 (Bureau of Mines Data)	Daily Av'ge August 3, 1929 (A. P. I. Wkly Prod. Rept.)	Excess
Oklahoma-Kansas	786,585	856,700	70,115
Texas-Louisiana-Arkansas	849,205	989,000	139,795
California	633,831	862,300	228,496
Balance of United States	190,391	200,600	10,209
Total United States....	2,460,012	2,908,600	448,588
Mexico-Central and South America	561,339	609,249[2]	47,910
Grand total	3,021,351	3,517,849	496,498

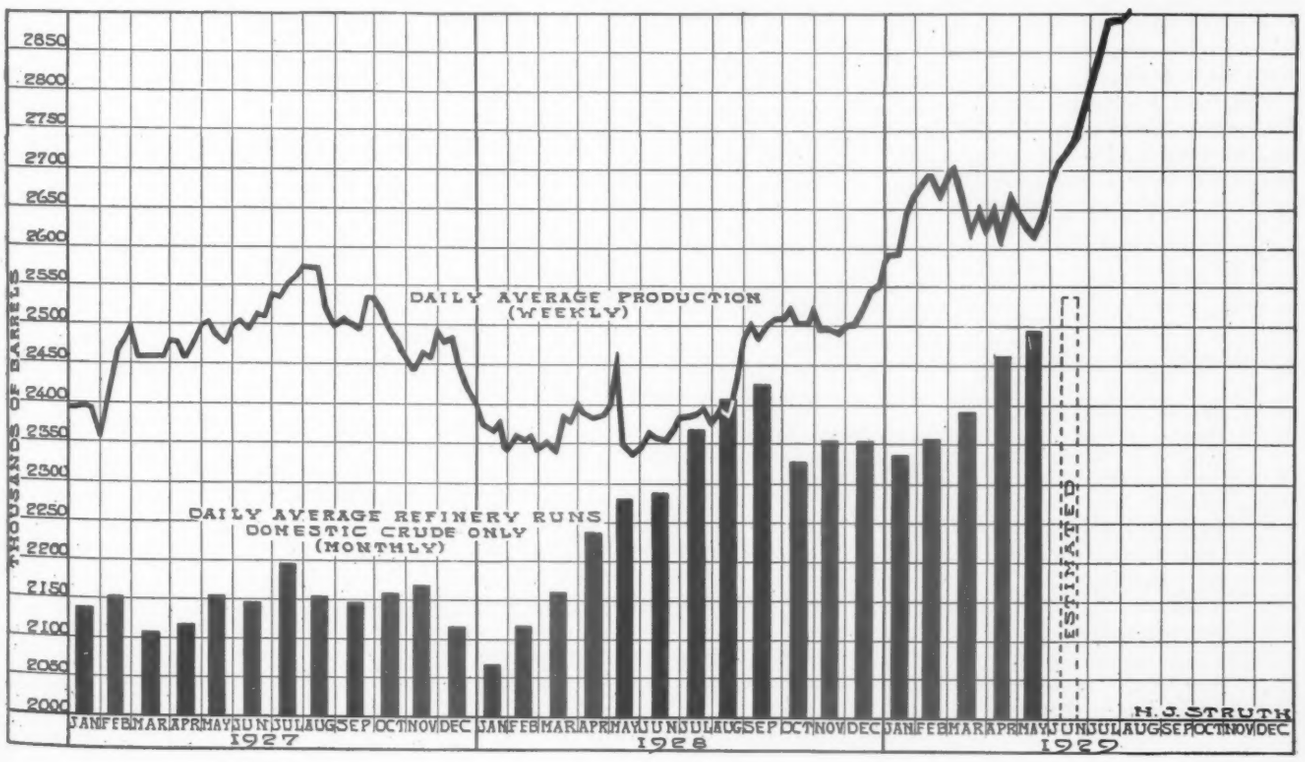
[2]As of March 30, 1929—latest date available.

United States production was up 11,950 barrels for the week ending August 3. Oklahoma, principally through the influence of the Oklahoma City field, increased 3550 barrels. Texas was up 11,000 barrels. Eastern States increased output 1300 barrels and the Rocky Mountain area was up 200 barrels. Declines to offset the increases were negligible except in California where the drop was 3300 barrels, and that is very small in relation to the state's total; however, it is significant in that it is a continuation of a drop which has brought to total for the West Coast from 882,600 barrels daily during the week ending July 13, down to 862,300 barrels last week.

As is shown in an accompanying tabulation, current production is now 448,588 barrels daily above the daily average for 1928.

"The price cannot stand." That is the general and widespread opinion of the Mid-Continent light oil price situation among Oklohoma oil operators. Apprehension that the Mid-Continent crude market is to be cut in the near future is growing rapidly in Tulsa. This fear is being heightened by the in-

DOMESTIC PRODUCTION AND REFINERY RUNS



XUM

WEEKLY REFINERY STATISTICS FOR THE UNITED STATES

Following are refinery runs of crude, gasoline and gas and fuel oil stocks, by major refining districts for the week ending July 27, 1929:

(Barrels of 42 Gallons)

District	Per Cent Potential Capacity Reporting	Crude Runs to Stills	Per Cent Operated of Total Capacity Reporting	Gasoline Stocks	Gas and Fuel Oil Stocks
East Coast	100.0	3,273,000	82.7	5,009,000	10,289,000
Appalachian	86.5	600,600	85.0	1,028,000	1,131,000
Ind., Ill., Ky.	94.7	2,024,800	92.8	6,053,000	3,468,000
Okla., Kans., Mo.	73.4	1,725,400	79.2	3,373,000	4,309,000
Texas	87.1	3,877,500	93.8	4,718,000	12,437,000
Louisiana-Arkansas	90.2	1,124,000	70.4	1,805,000	5,424,000
Rocky Mountain	92.3	482,500	56.1	1,786,000	653,000
California	97.8	5,177,700	90.0	12,170,000	104,781,000
Total week July 27	91.4	18,285,500	85.6	35,942,000	142,492,000
Daily average		2,612,200			
Total week July 20	90.9	18,098,100	85.1	36,002,000	141,925,000
Daily average		2,584,200			
Texas (Gulf Coast)	99.3	3,015,300	96.6	3,985,000	9,708,000
Louisiana (G. Coast)	100.0	862,400	79.5	1,602,000	4,512,000

NOTE: Due to revision in Crude Runs to Stills in California which were reduced to 5,056,400 barrels for the week of July 13th, the United States total Crude Runs to Stills shown above for that week, do not agree with the figures published in last week's report.

creasing production of Oklahoma, due mostly to the mounting production at Oklahoma City and the wide extensions that are being made there, together with the very unstable condition of the gasoline structure, and the approaching of the low consumption period.

The optimism prevailing among Oklahoma operators earlier in the summer has turned to a decided pessimistic outlook. The increase in production coupled with the reducing of crude runs to stills because of the over stocked gasoline market, has reduced the withdrawals from crude storage to practically nothing, and at any time additionals are likely to start, with several companies already sending some oil to tanks.

Pipe lines serving the Oklahoma City field are unable to cope with the big recovery. Empire Pipe Line Company and Indian Territory Illuminating Oil Company are rushing enlargements to their facilities. Oklahoma Pipe Line Company has announced that it will lay a line from Cushing to the field to relieve the situation. Rumors are that others will shortly announce pipe lines to the pool.

Early estimates that the Oklahoma City field would not be able to produce more than 50,000 barrels from its first crop of wells was far under-estimated. The field while producing but about 32,000 barrels daily could do much better, perhaps 40,000 barrels per day, if it had the facilities to flow open, and only a small number of the tests started the first of the year have been completed. The drilling rush to the deep horizons is also exceeding all expectations, there being about 70 active locations in the region, with others being made rapidly. It will be the first of the year 1930 before these can be completed. Thus far no definite failure has been completed in the field proper.

Group 3 gasoline market continues to sag. The average price is now 7 to 7¼ cents per gallon for U. S. Motor gasoline. Unwillingness of jobbers to stock up and stocks on hand is the prime factor in the lower market. Refiners continue to make drafts on stocks but they waited so long to reduce their runs to stills that little improvement is now anticipated.

California

The small production decline in California has had a beneficial effect upon the market situation in California, but it will require a far greater drop to bring consumption down to a level with the demand. Light oil continues to go into storage at the rate of about 80,000 barrels per day, while the heavier products are piling up at a rate almost as high. This requires one large tank per day to care for the surplus of light oil. Available storage room is far from plentiful and a continued overproduction will call for more tanks.

Premiums are practically a thing of the past in the critical fields, much oil being available at the posted price. This situation has given the major companies which rarely pay a premium a chance to secure light oil in large quantities at the posted price. One large independent recently had some trouble in disposing of about one million barrels of light crude, but the oil is now moving at the regular posted price.

Santa Fe Springs will produce a surplus for many months, unless acted upon by some external force. Production will not fall rapidly for several weeks, and even when the decline definitely sets in, the slump will be fairly gradual. The O'Connell zone is still a good sand and the 50 wells to be completed in the zone will give a good account of themselves. The third Clarke sand is also a promising formation and will help to offset the natural field decline.

Speculation as to the effect the gas saving law will have upon production after September 1 is rife, with opinions varying widely. This statute is very important and its enforcement would cause a drop of at least 100,000 barrels daily. The law will be contested by a few operators, and it may be possible to retard the effectiveness of the move for several weeks until a court decision is reached.

Twice as much California gasoline went

Details on Critical Fields

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS:								
Hendrick	601	3,093,305	5,145	579	139,020	240[1]	3	14
Church & Fields	190	204,025	1,074	187	24,360	130	2	7
Gulf-McElroy	77	59,265	770	76	13,590	179	1	1
Yates	325	2,105,285	6,478	316	140,860	446[1]	3	18
TEXAS PANHANDLE:								
Gray County	415	264,960	638	400	63,120	158	11	105
OKLAHOMA—								
Seminole	2,578	2,892,246	1,122	2,024	372,156	184	56	172
CALIFORNIA—								
Santa Fe Springs[2]	276	1,009,000	3,656	160	255,000	1,594	29	214

[1]Production partially pinched.
[2]Includes deep zone production. For field total add 210 wells and 24,000 barrels.

to the Atlantic seaboard, through the Panama Canal, during the first part of 1929 as was shipped during the same period of 1928, while foreign exports through the same channel were also much higher. This Eastern preference for California gasoline has helped the western producers, but has adversely affected Mid-Continent refiners.

Soft Spots in Texas

Lagging interest on the part of major crude purchasing agencies toward taking additional oil for purchase in North Central and West Texas fields is causing soft spots to appear in the crude market situation.

The Texas Panhandle district is now producing above the requirements of major pipe line companies, independent crude buyers and local refineries, and operators in the flush oil producing area of Gray County have had to restrict the open flow of some of their late completions. This district averaged 97,800 barrels daily during the past week, including 63,120 barrels from Gray County. The four trunk lines serving the district are handling less than 60,000 barrels daily and local refineries are absorbing about 15,000 barrels daily, while tank car shipments average about 2500 barrels daily, with the remainder going into storage.

The jointly owned 10-inch carrier of Magnolia Pipe Line Company and Gulf Pipe Line Company, leading from the Panhandle to the south resumed operations late in July after being idle for nearly a month because of both companies being congested with crude from West Texas. Neither of these concerns are in the market for outside oil.

Prairie Pipe Line Company and Humble Pipe Line Company previously announced that further increase in runs from the Panhandle are not to be made, while The Texas Pipe Line Company is to have very little space available in its system to accommodate outside oil when the batch of tests now on top of the oil horizon in Gray County are drilled in by The Texas Company.

In the Wichita Falls district of North Texas, a reduction of refinery operations has thrown crude back on the major purchasers at a time the district is at a new peak level on production. Since the latter are not particularly interested in boosting their runs, a soft tone in the market has developed. In Wilbarger County a number of producers were seeking pipe line outlets during the past week, including those cut off by the Waggoner Refining Company, in the face of a declining demand for crude.

West Texas sulphur oils have maintained a firm market, but this is largely due to the district being over supplied with trunk lines and production limited by proration enforcement in the important oil areas. However, there were general offers of crude connections in Winkler County during the past week. Mid-Kansas Oil & Gas Company is reported to have offered to turn over a portion of its heavy production in the Yates field to other major pipe line companies because of a curtailment in its market outlet.

Slow demand and low gasoline prices that are being experienced by all interior refineries of Texas have made it difficult for independent refiners to survive the adverse market condition. Three plants at Pyote, which have been operating on West Texas crudes have lost their crude contracts with the Texon Oil & Land Company, while one was placed in the hands of a receiver July 30.

Two plants in the Wichita Falls district received an order for two million gallons of high test gasoline meeting export specifications last week from the Atlantic Refining Company at 7⅝ cents per gallon. U. S. Motor gasoline is hard to move and soft in price at a fraction under 7 cents per gallon.

North Texas District Production Reaches New Peak

WICHITA FALLS, Texas. — The North Texas district, comprising 12 counties to the west, south and east of Wichita Falls, climbed to a new peak on oil production during the past week with an estimated daily average of 106,650 barrels. This level has been approached a number of times since a peak of 103,000 barrels was established by the Burkburnett field during its prime, but adverse crude market conditions, or exhaustion of flush areas have served to hold the output of the district below the new peak, while the normal level for the district ranges from 90,000 to 100,000 barrels daily.

This increase in output is being accompanied by evidence of some distress oil production in Wilbarger County. Crude purchasing agencies serving the district have announced that they are running more oil than they can market, or desire to take on at this time.

Wilbarger County is leading all other counties in the district, with a daily output of 29,200 barrels, and is also the most active with drilling operations, due to the bulk of the producing areas centering on fee lands of the W. T. Waggoner Estate, which enforces a continuous development clause in most of its lease contracts. Waggoner Refining Company, which is owned by the Waggoner Estate, recently turned back some crude connections held with independent companies in Wilbarger County because of being unable to market and refine the oil, and the producing units involved have found it difficult to induce major pipe line companies that are running the balance of the county's output to increase their oil runs for purchase. This situation in Wilbarger County can be remedied before becoming acute by the Waggoner Estate lifting drilling requirements on the most prolific leases, as has been the case on previous occasions when an adverse crude market prevailed.

Second Well For Tarver Pool

The Tarver pool, located in eastern Foard County, scored its second oil producer late last week when Fain-McGaha Oil Corporation and Shell Petroleum Corporation's T. A. Johnson 1, a northwest offset to the discovery well, swabbed 240 barrels of oil, testing 39 gravity, during 24 hour test ending Monday from saturated lime at 2024-41 feet. Pumping equipment is being installed, and Sinclair Pipe Line Company has made a connection to run the oil. Shell Petroleum Corporation's W. S. Tarver 1, which was completed in June at 2014-53½ feet is pumping about 130 barrels daily.

New Pool in Wichita County

C. P. Sheldon & Ven-Mex Oil Company's wildcat test on the C. Whittenback farm pumped 25 barrels of oil on initial gauge last week from sand at 1916-1920½ feet, thus definitely establishing a new pool in northwestern Wichita County. This producer is located in the northwest corner of Section 303, Waggoner Colony Subdivision, and is being offset to the north by Everets & Jamison's S. P. Gibson 1, located in the southwest corner of Section 302.

Recent heavy producers in the Bulcher field were responsible for Cooke County's rising to a new peak in production during the past week, having averaged 9985 barrels daily. Kewanee Oil & Gas Company's R. J. Timmis 5-B and 6-B reecntly were completed producing 4600 and 4370 barrels initial, respectively, and Humble Oil & Refining Company's R. B. Poteet 4, located to the west, flowed 50 barrels oil during first five-hour gauge from broken sandy-lime at 1166-1446 feet and saturated lime at 1446-1525 feet.

In the Huggins pool, located about three miles southeast of Bulcher field, Humble Oil & Refining Company's Fields & Bowers 2 yielded an initial production of 210 barrels at 1180-86 feet, thus giving the area three producers, while the same company's Fields & Bowers 3 missed the oil horizon and has been shut down at 1600 feet.

A pumping test given Buttram Petroleum Corporation's wildcat oil producer on the Boyd farm, located 1½ miles northwest of Avis, Jack County, credits the well with making 120 barrels of high gravity oil and about 20 barrels of salt water from sand at 2423-26½ feet. The discovery company has started a west offset as a preliminary step toward developing its 2200-acre block.

XUM

CRUDE OIL PRICE QUOTATIONS

Revised August 6, 1929

CRUDE OIL PRICE CHANGES

Effective August 1, Joseph Seep Purchasing Agency reduced all Pennsylvania grade oils 25 cents per barrel.

EASTERN STATES

(Effective August 1, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$3.55
Bradford District Oil in National Transit Lines (Pennsylvania)	3.55
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.50
Penna Crude Oil in Southwest Pennsylvania Lines (West Virgina)	3.50
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.40
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.50
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.35
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.75
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.50
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	60
Keister (Pennsylvania)	1.20

CENTRAL STATES

(Effective May 21, 1929)

Posted by Ohio Oil Co.

Illinois	1.75
Indiana	1.57
Lima	1.80
Plymouth	1.28
Princeton	1.75
Waterloo	1.25
Wooster	1.90

WESTERN KENTUCKY

All grades	1.83

MID-CONTINENT

(Effective May 21, 1929)

Magnolia Petroleum Company

Under 26	.70
26 to 26.9 gravity	.75
27 to 27.9 gravity	.85
28 to 28.9 gravity	.90
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.05
31 to 31.9 gravity	1.15
32 to 32.9 gravity	1.25

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

MID-CONTINENT

(Effective May 20, 1929)

Carter Oil Company, Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company

25 to 25.9 gravity	.90
26 to 26.9 gravity	.95
27 to 27.9 gravity	1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 and above	1.85

PANHANDLE

(Effective May 20, 1929)

GRAY COUNTY

(Humble Oil & Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company

Below 29 gravity	.90
29 to 29.9 gravity	.95
30 to 30.9 gravity	1.00
31 to 31.9 gravity	1.05
32 to 32.9 gravity	1.10
33 to 33.9 gravity	1.15
34 to 34.9 gravity	1.20
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.30
37 to 37.9 gravity	1.35
38 to 38.9 gravity	1.40
39 to 39.9 gravity	1.45
40 to 40.9 gravity	1.50
41 to 41.9 gravity	1.55
42 to 42.9 gravity	1.60
43 to 43.9 gravity	1.65
44 and above	1.70

WHEELER COUNTY

(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.90
30 to 30.9 gravity	.95
31 to 31.9 gravity	1.00
32 to 32.9 gravity	1.05
33 to 33.9 gravity	1.10
34 to 34.9 gravity	1.15
35 to 35.9 gravity	1.20
36 to 36.9 gravity	1.25
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.35
39 to 39.9 gravity	1.40
40 to 40.9 gravity	1.45
41 to 41.9 gravity	1.50
42 to 42.9 gravity	1.55
43 to 43.9 gravity	1.60
44 and above	1.65

CARSON-HUTCHINSON COUNTIES

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	.90
32 to 32.9 gravity	.95
33 to 33.9 gravity	1.00
34 to 34.9 gravity	1.05
35 to 35.9 gravity	1.10
36 to 36.9 gravity	1.15
37 to 37.9 gravity	1.20
38 to 38.9 gravity	1.25
39 to 39.9 gravity	1.30
40 to 40.9 gravity	1.35
41 to 41.9 gravity	1.40
42 to 42.9 gravity	1.45
43 to 43.9 gravity	1.50
44 and above	1.55

SOMERSET

Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE JANUARY 18, 1929)

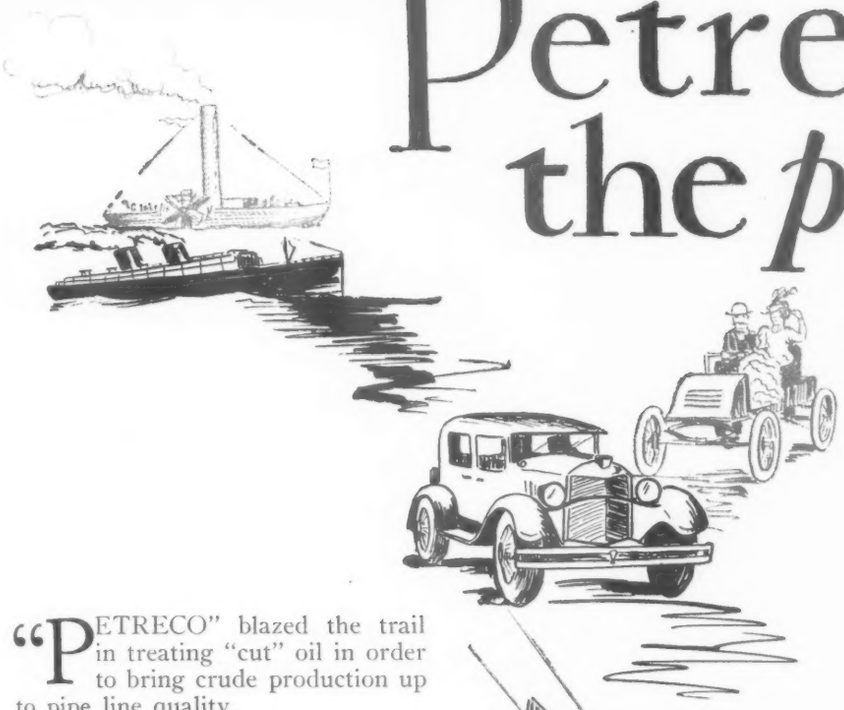
Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated)

Gravity	Ventura*	Signal Hill	Alamitos Heights-Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood† Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elks Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14-9	$ .85	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .50	$ .50	$ .50	$ .50	$ .50	$ .50
15-15-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
16-16-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
17-17-9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
18-18-9	.85	.75	.75	.75	.75	.75	..	..	.75	.75	.75	.70	.75	..	.50	.56	.56	.56	.56	.56
19-19-9	.85	.80	.80	.80	.80	.80	..	..	.80	.80	.80	.75	.80	..	.50	.62	.62	.62	.62	.62
20-20-9	.85	.85	.85	.85	.85	.85	..	..	.85	.85	.84	.80	.84	..	..	.68	.68	.68	.68	.68
21-21-9	.86	.89	.89	.89	.89	.89	..	..	.89	.89	.88	.85	.88	.89	..	.74	.74	.74	.74	.74
22-22-9	.87	.93	.93	.93	.93	.93	..	..	.93	.93	.91	.90	.91	.92	..	.80	.80	.80	.80	.80
23-23-9	.90	.97	.97	.97	.97	.97	..	..	.97	.97	..	.95	.94	.95	..	.85	.85	.85	.85	.85
24-24-9	.94	1.01	1.01	1.01	1.01	1.01	1.01	..	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25-9	.98	1.05	1.05	1.05	1.05	1.05	1.05	..	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26-9	1.02	1.09	1.09	1.09	1.09	1.09	1.09	..	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27-9	1.06	1.13	1.13	1.13	1.13	1.13	1.13	..	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28-9	1.10	1.17	1.17	1.17	1.17	1.17	1.17	..	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29-9	1.14	1.21	1.21	1.21	..	1.21	1.21	..	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30-9	1.18	1.25	1.25	1.25	..	1.25	1.25	..	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31-9	1.23	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32-0	1.28	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
32-32-9	..	..	..	..	..	..	1.41	..	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34-9	..	..	..	..	..	..	1.47	1.16	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35-9	..	..	..	..	..	..	1.53	1.22	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36-9	..	..	..	..	..	..	1.59	1.28	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37-9	..	..	..	..	..	..	1.65	1.34	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38-9	..	..	..	..	..	..	1.71	1.40	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39-9	..	..	..	..	..	..	1.77	1.46	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40-9	..	..	..	..	..	..	1.83	1.52	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	..	1.89	1.58	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	..	1.95	1.64	..	..	..	..	..	..	..	..	..	..	..	..

KETTLEMAN HILLS—55 degrees Gravity and above $1.65 per barrel. *Union Oil Company. †Changed March 18, 1929.

(See Page 44)

Petreco the *pioneer*-



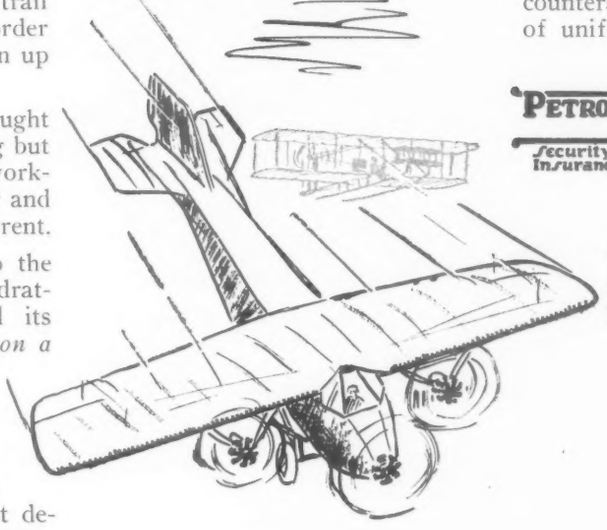
"PETRECO" blazed the trail in treating "cut" oil in order to bring crude production up to pipe line quality.

Long before anyone else thought of electricity and oil as anything but a catastrophe, "Petreco" was working out a way to separate water and oil by means of an electric current.

More than twenty years ago the first "Petreco" Electrical Dehydrating Plant successfully treated its first run of emulsified crude, *on a commercially profitable basis.*

And ever since that first run, eminently successful as it was, "Petreco's" staff of expert petroleum engineers has worked incessantly to reach the highest degree of perfection—to attain the minimum in costs—to insure the maximum in dependability—in the treatment of crude oil emulsions.

No other process, method or medium of treating emulsified crude ever has offered so completely all the advantages to be desired—none has ever reached such heights of successful performance and results achieved—as "Petreco."



If such a process had been possible —other than "Petreco"—why, "Petreco" undoubtedly would have developed it. Regardless of whether it was an electrical process or not.

"Petreco" is the one outstanding, successful process for treating crude oil emulsions.

The fact that it is an electrical process is incidental to the results achieved—but of paramount importance when those results are essential.

When you encounter "cut oil" problems, take them to your Official Oil Doctors—pioneers in the treatment of crude oil emulsions—specialists who have won the recognition of the petroleum industry.

For no claim or argument can counteract more than twenty years of uniform, unqualified success.

PETROLEUM RECTIFYING COMPANY of CALIFORNIA

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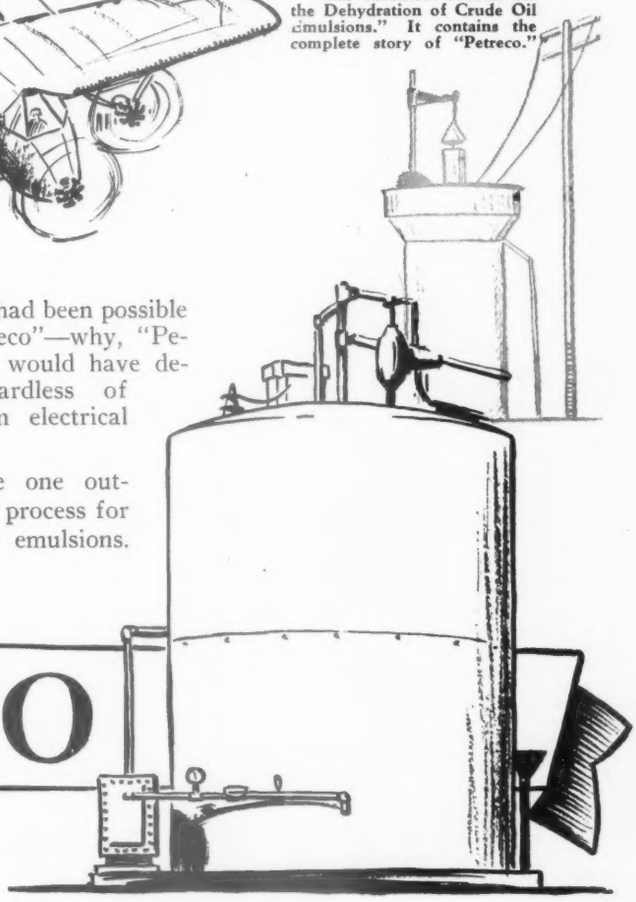
Petroleum Bldg. Houston, Texas

Write for this booklet: "The Electrical Process for the Dehydration of Crude Oil Emulsions." It contains the complete story of "Petreco."



PETRECO

Fully Protected by Process and Apparatus Patents.

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 42*)

WEST TEXAS
(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity	.70
25 to 25.9 gravity	.74
26 to 26.9 gravity	.78
27 to 27.9 gravity	.82
28 to 28.9 gravity	.86
29 to 29.9 gravity	.90
30 to 30.9 gravity	.94
31 to 31.9 gravity	.98
32 to 32.9 gravity	1.02
33 to 33.9 gravity	1.06
34 to 34.9 gravity	1.10
35 to 35.9 gravity	1.14
36 and above	1.18

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

MARKHAM
The Texas Company
(Effective May 20, 1929)

All grades	$1.00

LULING

All grades	.90

NORTH AND CENTRAL TEXAS
(Effective May 21, 1929)
Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude
(Humble Oil and Refining Company)

Below 25	.85
25 to 25.9 gravity	.90
26 to 26.9 gravity	.95
27 to 27.9 gravity	1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 and above	1.85

SOUTH TEXAS

Mirando	.90
Salt Flat	1.25

GULF COAST
(Effective May 21, 1929)

Grade "A" all companies	1.30
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.18
26 to 26.9 gravity	1.21
27 to 27.9 gravity	1.24
28 to 28.9 gravity	1.27
29 to 29.9 gravity	1.30
30 to 30.9 gravity	1.33
31 to 31.9 gravity	1.36
32 to 32.9 gravity	1.39
33 to 33.9 gravity	1.42
34 to 34.9 gravity	1.45
35 to 35.9 gravity	1.48
36 to 36.9 gravity	1.51
37 to 37.9 gravity	1.54
38 to 38.9 gravity	1.57
39 to 39.9 gravity	1.60
40 and above	1.63

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

WYOMING-MONTANA
(Effective May 21, 1929)
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.65
Grass Creek	1.65
Rock Creek	1.40
Lost Soldier	1.05
Lance Creek	1.68
Mule Creek	1.20
Notches	.65
Big Muddy	1.43
Osage	1.38
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.48
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA
(Effective May 24)

Sunburst	$1.75
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.08
Hogback	1.43

CANADA
(Effective May 21, 1929)

Oil Springs	2.27
Petrolia	2.20

LOUISIANA-ARKANSAS
(Effective May 22, 1929)
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company.)

27 to 27.9 gravity	$1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.9 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 gravity and above	1.85

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS
(All Companies)

Below 28 gravity	.90
28 to 28.9 gravity	.94
29 to 29.9 gravity	.98
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.06
32 gravity and above	1.10

SMACKOVER
(All Companies)

Below 24 gravity	.85
24 and above	1.00
Bellevue	1.30
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	1.00
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS
(Barrels of 42 gallons)

	Week Ended July 27	Week Ended July 20
AT ATLANTIC COAST PORTS—		
Baltimore	338,000	221,000
Boston	161,000	150,000
New York	903,000	795,000
Philadelphia	253,000	365,000
Others	304,000	.....
Total	1,959,000	1,531,000
Daily Average	279,857	218,714
AT GULF COAST PORTS—		
Galveston District	.....	.....
New Orleans and Baton Rouge	53,000	124,000
Port Arthur and Sabine District	.....	65,000
Tampa	4,000	.....
Total	57,000	189,000
Daily Average	8,143	27,000
AT ALL UNITED STATES PORTS—		
Total	2,016,000	1,720,000
Daily Average	288,000	245,714
Daily Average Four Weeks Ended	284,107	290,107

CALIFORNIA OIL RECEIPTS AT ATLANTIC & GULF COAST PORTS
(Barrels of 42 gallons)

	Week Ended July 27	Week Ended July 20
AT ATLANTIC COAST PORTS—		
Baltimore	31,000	.....
Boston	.....	.....
New York	217,000	159,000
Philadelphia	80,000	.....
Others	.....	.....
Total	328,000	159,000
Daily Average	46,857	22,714
AT GULF COAST PORTS—		
Total	129,000	.....
Daily Average	18,428	.....
AT ATLANTIC & GULF COAST PORTS—		
Total	457,000	159,000
Daily Average	65,285	22,714
Daily Average Four Weeks Ended	69,571	66,857
Distribution of Total California Oil Receipts is as follows:		
Crude	129,000	.....
Gasoline	328,000	159,000
Total	457,000	159,000

NATIONAL ADVERTISING

makes NEW NEIGHBORS *feel* FRIENDLY *toward you*

It's a great feeling **... when you're traveling in a foreign country where nobody knows you or talks your language, to meet an old familiar face from the old home town!**

And that's the kind of feeling that comes to a stranger when he sees a dealer selling and displaying an old familiar product that was advertised and sold in his old home town.

Newcomers in any community become customers of the dealer who carries *nationally advertised oil*—they may not know the dealer but they *know* the motor oil—they have confidence in it—they have friendship for it. National advertising for a product brings new business to the dealer who carries it.

SINCLAIR REFINING COMPANY, INC.
45 NASSAU STREET NEW YORK
Atlanta Boston Chicago Houston Kansas City

SINCLAIR OPALINE

REG. U.S. PAT. OFF.

is NATIONALLY ADVERTISED AS THE *Extra Service* MOTOR OIL

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1928	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July	587,150	102,750	597,250	133,650	42,150	90,700	113,400	80,400	644,700	2,392,150	74,156,600
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September	724,850	99,750	604,150	129,500	39,050	84,700	112,550	78,850	631,650	2,505,050	75,151,500
October	741,350	97,900	598,550	129,950	38,800	83,550	114,000	83,300	624,450	2,511,850	77,867,800
November	715,750	96,600	586,350	135,100	38,600	83,000	109,700	81,150	653,050	2,499,300	74,978,300
December	710,600	97,200	603,700	135,050	37,300	81,350	113,450	74,600	697,850	2,551,100	79,084,400
1929											
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April	665,600	106,400	650,100	154,550	35,550	72,900	110,850	69,400	781,350	2,646,700	79,402,100
May	679,650	115,400	651,100	150,350	35,350	71,500	114,150	72,850	749,250	2,639,600	81,827,600
June	685,200	120,750	688,200	147,500	35,700	70,050	116,750	72,000	827,200	2,763,400	82,902,250
July 6	717,800	122,400	696,100	147,250	35,050	69,250	119,100	71,850	878,600	2,857,400	20,001,800
July 13	720,900	121,300	715,200	151,150	35,700	69,150	120,900	74,850	882,600	2,891,750	20,242,250
July 20	717,700	125,000	723,800	146,500	36,150	68,650	122,000	73,850	880,300	2,893,950	20,257,650
July 27	726,500	126,700	729,050	145,400	36,100	68,200	123,800	75,300	865,600	2,896,650	20,276,550
August 3	730,050	126,650	733,600	151,900	35,700	67,800	125,100	75,500	862,300	2,908,600	20,360,200
Increase	3,550	.....	4,550	6,500	.....	.....	1,300	200	.....	11,950	83,650
Decrease	.....	50	.....	.....	400	400	.....	.....	3,300	.....	.....

TEXAS
(Outside Gulf Coast)
PANHANDLE DISTRICT

	August 3	July 27
Carson County	8,300	7,500
Gray County	62,100	58,500
Hutchinson County	25,700	25,000
Wheeler County	700	850
Others	1,100	1,150
Total	97,900	93,000

NORTH TEXAS

Archer County	19,750	19,600
Burkburnett	8,750	8,650
Electra	11,800	11,700
Iowa Park-KMA	4,600	4,650
Montague and Cooke Cos.	12,900	13,000
Wilbarger	28,750	28,250
Others	750	750
Total	87,300	86,600

WEST CENTRAL TEXAS

Brown County	7,900	7,600
Callahan County	4,250	4,100
Coleman County	6,000	6,100
Eastland-Desdemona	7,400	7,200
Jack County	3,100	3,200
Palo Pinto County	350	350
Shackelford County	11,000	10,950
Stephens County	6,850	6,800
Throckmorton County	800	800
Young County	10,700	11,000
Others	700	700
Total	59,050	58,800

WEST TEXAS

Crane-Upton Counties	45,600	45,500
Crockett County	2,000	2,000
Howard County	41,400	42,200
Jones County	3,400	3,300
Mitchell-Scurry Cos.	2,600	2,650
Pecos County	138,400	138,300
Reagan County	17,900	17,900
Winkler County	140,300	142,000
Others	1,400	1,400
Total	393,000	395,250

EAST CENTRAL TEXAS

Boggy Creek	2,800	3,000
Corsicana-Powell	7,350	7,400
Currie	400	400
Mexia	5,250	5,300
Nigger Creek	300	300
Richland	350	350
Wortham	1,000	950
Total	17,450	17,700

SOUTHWEST TEXAS

Dale	400	400
Laredo District	11,000	10,900
Luling	11,100	11,250
Lytton Springs	1,000	1,000
Somerset	1,400	1,400
Salt Flat	49,000	48,550
Others	5,000	4,200
Total	78,900	77,700
T'tl Tex. (Outside Gulf Coast)	733,600	729,050

TEXAS GULF COAST

Barbers Hill	11,600	6,700
Batson	1,300	1,300
Big Creek	2,900	3,500
Blue Ridge	2,950	3,200
Boling	1,400	1,400
Damon Mound	600	600
Goose Creek	5,750	5,400
Hull	7,950	8,300
Humble	5,300	6,500
Orange County	2,750	2,800
Pierce Junction	19,700	16,000
Raccoon Bend	7,650	7,400
Saratoga	950	900
Sour Lake	2,700	2,600
South Liberty	6,400	6,600
Spindle Top	27,100	27,000
Sugar Land	11,900	13,100
West Columbia	6,200	5,950
Clay Creek	2,250	2,500
Others	4,400	4,250
Total	131,750	126,000
Texas Total	865,350	855,050

OKLAHOMA

Asher	11,350	11,550
Carr City	13,850	14,200
Logan County	23,850	23,000
Braman	3,950	3,950
Blackwell	3,800	3,700
Hubbard	1,700	1,800
Thomas	850	850
Tonkawa	9,300	9,350
Garber	5,650	5,450
Burbank	19,350	19,500
Osage (outside Burbank)	26,350	26,050
Cushing	18,500	18,600
Yale Jennings	7,050	7,050
Davenport	1,350	1,400
Bristow Slick	21,000	20,750
North Okmulgee	12,700	12,750
Lyons Deaner	8,300	8,250
Cromwell	8,000	8,050
Papoose	3,250	3,250
Wewoka	4,700	4,700
Seminole	34,000	33,600
East Seminole	5,100	5,300
Bowlegs	34,250	34,400
Searight	11,400	11,000
Little River	77,300	79,800
Earlsboro	82,500	83,000
Duncan District	7,450	7,500
Graham	4,350	4,350
Fox	1,400	1,400
Healdton	13,100	13,050
Hewitt	7,850	7,900
Scholem Alechem	12,700	12,700
Pearson	1,200	1,250
St. Louis	73,850	74,150
Allen	24,350	25,050
Maud	12,750	12,000
Mission	30,150	30,700
Oklahoma City	30,500	24,700
Others	61,000	60,450
Total	730,050	726,500

CALIFORNIA

Santa Fe Springs	268,000	268,000
Long Beach	170,000	171,000
Huntington Beach	43,500	44,000
Torrance	12,600	12,700
Dominguez	10,000	10,000
Rosecrans	6,700	6,700
Inglewood	23,500	23,500
Midway-Sunset	67,000	67,000
Ventura Avenue	56,500	57,000
Seal Beach	48,000	48,000
Elwood-Goleta	26,000	27,000
Kettleman Hills	4,000	4,000
Others	126,500	126,700
Total	862,300	865,600

KANSAS

Greenwood County	20,500	20,500
Florence-Covert	950	1,000
Peabody-Ebling	3,350	3,350
Eldorado-Towanda	13,050	13,000
Augusta-Fox Bush	3,100	3,100
Rainbow Bend	1,050	1,050
Russell	3,100	3,100
Churchill	7,250	7,100
Oxford	4,350	4,500
Sedgewick	35,650	36,500
Others	34,300	33,500
Total	126,650	126,700

NORTH LOUISIANA

	August 3	July 27
Homer	3,850	3,850
Haynesville	4,850	4,900
Caddo Light	9,200	9.450
Caddo Heavy	3,350	3.400
DeSoto-Red River	3,650	3,700
Elm Grove	550	550
Bellevue	600	600
Cotton Valley	2,500	2,500
Urania	6,400	6,400
Pleasant Hill	500	500
Others	250	250
Total North Louisiana	35,700	36,100

LOUISIANA GULF COAST

Bayou Boullion	200	200
East Hackberry	2,500	2,700
Hackberry	2,100	1,900
Edgerly	700	700
Evangeline	2,300	2,400
Lockport	3,100	3,350
Sorrento	200	150
Sulphur Dome	3,500	2,250
Sweet Lake	50	50
Vinton	4,400	5,100
Others	1,100	600
Total Louisiana Gulf Coast	20,150	19,400
Louisiana Total	55,850	55,500

ARKANSAS

El Dorado	4,600	4,600
Champagnolle	7,050	7,250
Smackover Light	6,100	6,100
Smackover Heavy	46,750	46,950
Stephens	1,000	1,000
Nevada	1,000	1,000
Lisbon	1,200	1,200
Others	100	100
Total	67,800	68,200

MOUNTAIN STATES
WYOMING

Salt Creek	31,100	30,850
Grass Creek	2,300	2,300
Elk Basin	800	750
Big Muddy	2,300	2,300
Lost Soldier	4,150	4,150
Rock River	2,400	2,450
Lance Creek	250	200
Oregon Basin	4,950	5,600
La Barge	2,200	2,050
Others	3,950	3,850
Total	54,400	54,500

MONTANA

Cat Creek	1,400	1,450
Sunburst	6,950	6,850
Pondera	2,950	3,000
Others	100	100
Total	11,400	11,400

COLORADO

Moffats (Craig)	1,250	1,400
Fort Collins	2,500	2,250
Florence	850	1,000
Others	2,200	2,200
Total	6,800	6,850

NEW MEXICO

Artesia	850	850
Hogback	100	100
Rattlesnake	1,500	1,150
Others	450	450
Total	2,900	2,550
Totals Mountain States	75,500	75,300

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	125,100	123,800

PRODUCTION SUMMARY

East of Rockies	2,833,100	1,955,750
Total United States	2,908,600	2,896,650

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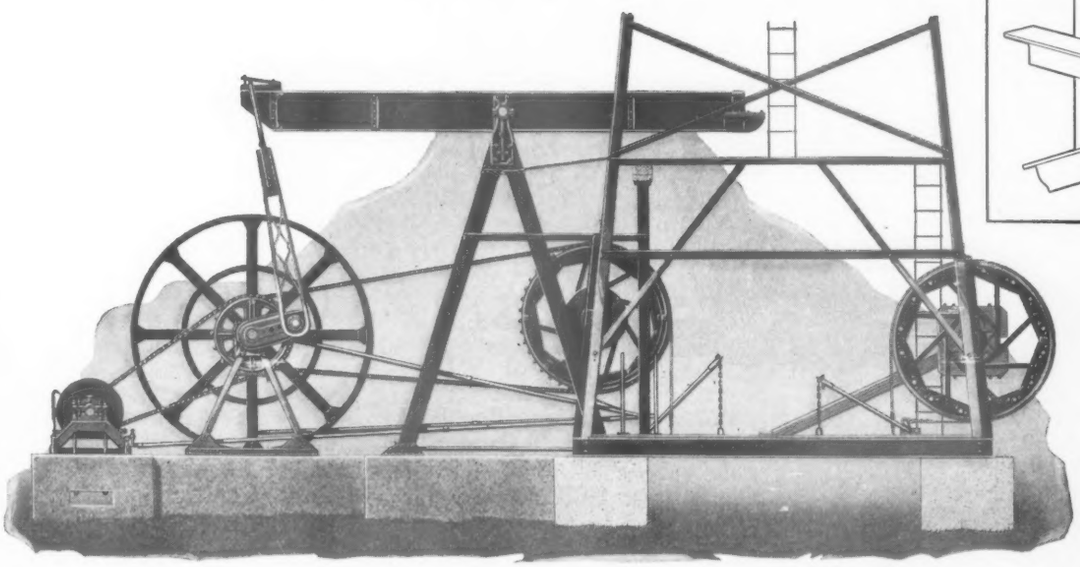

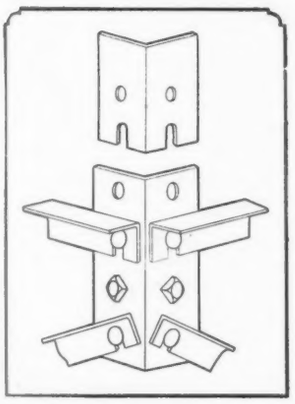

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GATE VALVES

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Taylor-Link Pool Property Lines To Get Court Test

SAN ANGELO. — Two tests drilling near the discovery producer of the Taylor-Link pool, Pecos County, are scheduled to reach the 1600-foot oil horizon by the end of the week, while in the meantime nearby lease owners are confronted with a long controversy as to the establishment of correct property lines. All close-in acreage is owned in fee by the University of Texas, including the site of the disocvery well, and claims of excess strips of land between blocks 16, 17, 18 and 20 have been put on record with the Land office.

Increased mineral values on these supposed excess strips of land will follow the successful completion of more producers, and battle lines are being formed to settle the question in court.

Taylor-Link Oil Company's University 2, a south offset to the 100-barrel flowing well, is drilling below 1350 feet, and Moncrief's University 1, located one-half mile to the west, is drilling in gray lime at 1410 feet.

Protection Policy

As a matter of protection, should the vacancies be established in the courts later, the operators in the Taylor-Link pool are purposely staking their locations considerable distance from property lines, such being particularly true around the discovery well. Surveys on the area run by engineers for the University and State Land office do not jibe, while oil companies are divided in opinion as to the locations of the excess strips.

Gulf Production Company's Hutchings 2, located in the south end of the Monahans pool, Ward County, flowed about 100 barrels daily early this week when cleaned out at a total depth of 2679 feet in hard gray lime. This well passed up several gas horizons and also small oil showings, but has not come up to expectations in oil production, although much higher on structure than the other producers in the pool.

Taylor-Link Pool Active

In the Taylor-Link pool, Pecos County, W. A. Moncrief et al's University 1, Section 13, encountered the top of brown lime at 1325 feet, with a surface elevation of 2560 feet after successfully casing off a flow of 15 million cubic feet of sweet gas at 915 feet by setting 8¼-inch casing at 925 feet. This test is credited with being about 100 feet higher on structure than the discovery well to the east, and early this week encountered two million cubic feet of sulphur gas at 1330-80 feet. When an effort was made to drown out the lower gas flow with water, it broke through the casing seat into the other gas, and an effort is being made to prevent further contamination of the sweet gas. Moncrief's University 1, Section 27, is fishing at 290 feet. Taylor-Link Oil Company's University 2, a south offset to the company's discovery well, is due to reach the oil horizon this week, as it was making good progress at last reports below the 1250-foot level. Continental Oil Company's University 1-A, Section 10, Block 17, encountered the usual upper sulphur water at 1220-30 feet, and a trace of oil at 1528 feet. This test was lowering 8¼-inch casing to 1538 feet Monday morning.

In the Pecos Valley pool, located in northern part of Pecos County, the joint test of The Texas Company-Phillips Petroleum Company on the J. K. P. Campbell land, Section 46, Block 10, H.&G.N. Survey, developed 200 feet of oil in hole at 1710-13 feet, and about 200,000 cubic feet of gas at 1725-30 feet, resulting in tools being lodged. In the same area, Independent Oil & Gas Company's Rayburn 1, Section 23, Block 10, H.&G.N. Ry. Survey, is reported to have encountered sulphur water at 1925-30 feet after drilling past the expected oil and gas horizons. A recent gauge taken on O. J. Perren et al's completed gas well on the Eaton land, Section 27, Block 3, H.&T.C. Ry. Survey, credits it with a flow of 15,800,000 cubic feet of sulphur gas, with a rock pressure of 750 pounds at 1490-1502 feet. This well has been shut in since middle April. The gas has a B. T. U. content of 990 units. A gauge was also taken on R. D. Webb et al's wildcat gas well on fee land, near Fort Stockton, resulting in a flow of 6,100,000 cubic feet of 1000 B. T. U. gas, with a rock pressure of 165 pounds at 472 feet.

Settles Field Extended

Producing limits of the Settles field, located on the Howard-Glasscock County line, were extended about two miles to the southwest when Kirby Petroleum Company et al's J. J. Phillips 1, located in the northeast corner of the E½ of NW¼ Section 23, Block 33, T.&P. Ry. Survey, T-2-s, swabbed 185 barrels of 31.3 gravity oil on six-hour test from sandy-lime at 2212-68 feet. This well was shot with 206 quarts at 2160-2268 feet, resulting in serious damage to the casing. An effort is being made to avoid a junked hole. The Sun Oil Company has staked a location to drill a north offset, as the latter company owns lease on all of Section 14, while the Schermerhorn Oil Company will offset the Phillips test to the east. The Phillips well logged the top of the lime at 2090 feet, with a surface elevation of 2624 feet.

Two more producing wells, offsetting production, were completed in the Shipley pool, located in southeastern Ward County last week. The Shipley Oil Corporation's Hayzlett 2 swabbed and flowed 130 barrels oil during first 24-hour gauge after a shot of 140 quarts at 2430-85 feet. Atlantic Oil Producing Company and Delmar Oil Company's Hayzlett 3 flowed 35 barrels of oil during first 12 hours after placing a similar sized shot in sandy-lime at 2468-2500 feet. This pool averaged 605 barrels daily last week from six producers, exclusive of the above two new wells.

Having successfully cleared up a series of fishing jobs and bad holes, the Big Lake Oil Company is now making good progress on the four tests in the Big Lake field that are scheduled to test out the 8500-foot production level. This company's University 131 is setting the pace for the quartet, and early this week was drilling shale and lime shells at 7911 feet, representing 71 feet of new hole for the past seven-day period. The depths of the other tests follow: University 151 drilling hard sandy-lime 3550 feet; University 1-C, drilling hard lime 3250 feet; and University 2-C, drilling 3410 feet. The Group One Oil Corporation's discovery well of the 8500-8523-foot pay sand flowed 2746 barrels of 56 gravity oil and about 25 million cubic feet of gas at the beginning of the week.

Pampa-Lefors Production Passes Handling Facilities

AMARILLO, Texas. — Partial restriction of production from flowing wells in the Pampa-Lefors section of Gray County became necessary during the past week because of congestion in the local crude market. Both major and independent crude purchasing agencies in this section of the Texas Panhandle district have announced that they are unable to continue to absorb the mounting volume of new production, and this condition has resulted in groups of operators working out individual shutdown agreements in order to halt unnecessary drilling.

Phillips Petroleum Company's J. H. Palmer 4, located on the north end of the Finley-Brown, or Lefors field, set up a new record for initial production late last week with an output of 9160 barrels of high gravity clean oil during first 11 hours from top of granite wash formation at 2855 feet. This producer is rated at between 15,000 and 20,000 barrels daily, with an estimated flow of 40 million cubic feet of wet gas.

Storage and pipe line facilities were not available to permit continued open flow of oil from the Phillips Petroleum Company's Palmer 4, which is located in the northwest corner of the east 83-acre tract of Section 31, block B-2, H&GN Ry. survey, and the well was pinched in. This producer was drilled in and bailed on the night of August 1, and is credited with having flowed 1000 barrels of oil per hour for three-hour period ending at midnight and averaging 850 barrels per hour during next three hours. The flow declined to an average of 750 barrels per hour during the three-hour period ending 6 a.m., August 2, and dropped to 680 barrels per hour between 7 and 8 a.m., of the same day.

Several Offset Big Well

The Texas Company is drilling a north offset to this big producer, and the McMan Oil & Gas Company's J. H. Palmer 2, a west offset to the record well, was recently completed as a 1200-barrel flowing well and 30 million cubic feet of gas at 2907-30 feet. Phillips Petroleum Company is drilling eight tests on its Palmer 83-acre tract, and the Operators Oil Company is drilling a like number on the 90-acre lease, offsetting to the east. An occasional unusually big producer must be scored to make such close drilling profitable.

Congestion in the general crude market situation is responsible for the crude purchasers restricting their runs from Gray County, as the combined capacity of the four trunk lines serving this county and the balance of the Panhandle is about 120,000 barrels, while the district's average output last week was 97,800 barrels daily. Refineries at Borger, Pampa and Amarillo are being supplied with local lines. Gray County advanced to a new peak of 63,120 barrels daily average production during the past week, but declined in field work after scoring a heavy completion list. A survey of field operations late last week credits the county with 105 drilling and shut-down tests; 11 derricks and rigs, and six locations.

Gulf Production Company's S. Faulkner 1-A, which was reported last week as having shifted the trend of flush production in the Pampa-Lefors section to the south with an initial flow of 3765 barrels of 38.1° gravity oil and 4½ million cubic feet of gas, testing 2.39 gallons per 1000 cubic feet, from granite wash at 2857-80 feet, was holding at 3500 barrels daily early this week. However, the well must be agitated occasionally to maintain the heavy flow. This well is located in the northeast corner of the south one-half of Section 33, block B-2. Champlin Refining Company is drilling in a north offset this week, while Danciger Oil & Refining Company et al are drilling a northeast and east offset on the H. K. Beck farm, Section 28.

The Texas Company's Cook-Faulkner 6, which recently encountered salt water at 2839 feet, exhausted the water in drilling deeper, and picked up granite wash formation at 2860-74 feet that made 250 barrels of oil on 12-hour swabbing test. This well is located among producers on the west line of Section 29, block B-2, and has a surface elevation of 2913 feet. The Texas Company's J. B. Bowers 11, located on the south line of the east one-half of Section 89, block B-2, and in the Bowers-Jackson pool proper, gauged 3175 barrels of clean oil on initial test from granite wash at 2966-69 feet. The Phillips Petroleum Company's Jackson-Joe Dan 7, a southeast diagonal offset to the above new well, continues to average about 6300 barrels of oil daily on gas lift. This latter producer established a production record for the county June 1, 1929, with an initial flow of 14,275 barrels daily at 2960-63 feet, when it was owned by the Operators Oil Company and the Danciger Oil & Refining Company, and went dead about the time the property changed ownership. However, the gas lift installation has made it the most prolific producer for the county, considering the time that it has been on production.

Jal Field Extended Mile and Half By Oil Gas Producer

ARTESIA, New Mexico.—Extending the Jal field 1½ miles to the north, Continental Oil Company and The California Company's E. J. Wells Permit 1 developed an initial flow of 165 barrels of oil and about three million cubic feet of sulphur gas last week from broken lime formation at 3390-3438 feet. This producer is in the SWc E NE Section 11-25s-36e, and slightly more than 1½ miles due north of Humble Oil & Refining Company's Wm. Lindley 1, which is flowing about 780 barrels of 29 gravity oil and 10 million cubic feet of gas daily through three-inch tubing, with 200 pounds back pressure, from lime at 3360-3375 feet. The latter well has been on production since July 22, and is an east offset to a 75-barrel pumper owned jointly by the Cranfill-Reynolds Company and Magnolia Petroleum Company. Humble Oil & Refining Company is rigging up rotary to drill Lindley 1-B on an adjoining section.

Vacuum Oil Company has halted drilling on State 1, which established a new pool for Lea County and also a new record for depth that oil is found in commercial quantities, at a total depth of 4900 feet. This well pumped 180 barrels oil during 24-hour gauge ending August 3. It was originally completed in June at 4710 feet, and was deepened after being on production for about one month. Only a negligible increase in oil production was gained by deepening. This producer is located in SWc NW Section 13-17s-34e, and is without a pipe line connection.

In the Hobbs pool, located on the east line of Lea County, Mid-West Refining Company's W. S. Capps 1 increased its flow to 670 barrels of clean oil during 24 hour gauge ending August 3 from lime at 4065-4200 feet. This producer is located in SWc Section 3-19s-38e, and is a northeast offset to the discovery well of the pool drilled by the same company. The discovery well was a similar calibre producer, but dropped to a small flow after drilling into sulphur water at a total depth of 4245 feet and later plugged back. Harry Walker of Wichita, Kansas, is drilling a test on the O. B. Terry land, located about one mile to the southeast of the producers in the Hobbs pool, and late last week was drilling below 3060 feet. Shell Petroleum Corporation's O. B. Terry 1, Section 22-19s-38e, is lowering pipe after installing rotary at 1200 feet. Rotary will be used to the top of the brown lime, then standard tools will be re-installed to drill in. Company tools are being used on this test.

Mid-West Refining Company's Gregory Permit 22, SW Section 31-25s-37e, cored an oil saturated lime at 3135-50 feet after mudding off 70 million cubic feet of gas at 3071 feet, and will test for production early this week. The Texas Company et al's C. W. Shepherd 1, Section 6-26s-37e, was washing hole down early this week after allowing cement to set at 3300-18 feet. A string of casing is to be run before deepening.

In eastern Eddy County, Grayburg Oil Company of New Mexico is deepening its 100-barrel producer on the Burch Permit, Section 19-17s-30e, from original lime horizon at 3035-3142 feet, but failed to secure an increase when carried to 3190 ft.

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HOUSTON

Advocacy of Tariff Disproved by Growing Foreign Trade

By H. J. STRUTH
Staff Economist

DESPITE arguments in favor of a tariff on foreign crude imported into the United States, facts at hand disprove its feasibility. Apparently, advocates of this measure failed to take into consideration the fact that exports of American oil products have for many years considerably exceeded imports. In fact, in recent times, the petroleum industry's foreign business has assumed larger proportions than ever before and indications point to continued expansion in this direction. It is apparent that if the proposal to place a tariff on all crude imported into the United States had been passed by congress, the petroleum industry would have faced the inevitable plight of losing a large share of its growing foreign business.

During the years 1918 to 1928, inclusive, exports of petroleum and its products have exceeded imports by a total of 110,767,000 barrels. During that period our imports have aggregated 983,228,000 barrels, while exports amounted to 1,093,995,000 barrels. During 1928 over half of the entire excess of exports over imports over the 11-year period cited represented the balance in favor of the American petroleum industry. During that year the excess of exports over imports amounted to 59,049,000 barrels, being the difference between imports of 91,382,000 barrels and exports of 150,431,000 barrels. During the first five months of this year, imports have aggregated 45,908,000 barrels, while exports amounted to 62,184,000 barrels, a balance in favor of the United States of 16,270,000 barrels. These figures alone prove the fallacy of placing a tariff on imported petroleum, at the risk of losing a growing favorable balance. In fact, last year's figures show that for every barrel of oil imported into the United States, 1.65 barrels was exported to foreign markets. Surely, there is nothing wrong with trading on that basis!

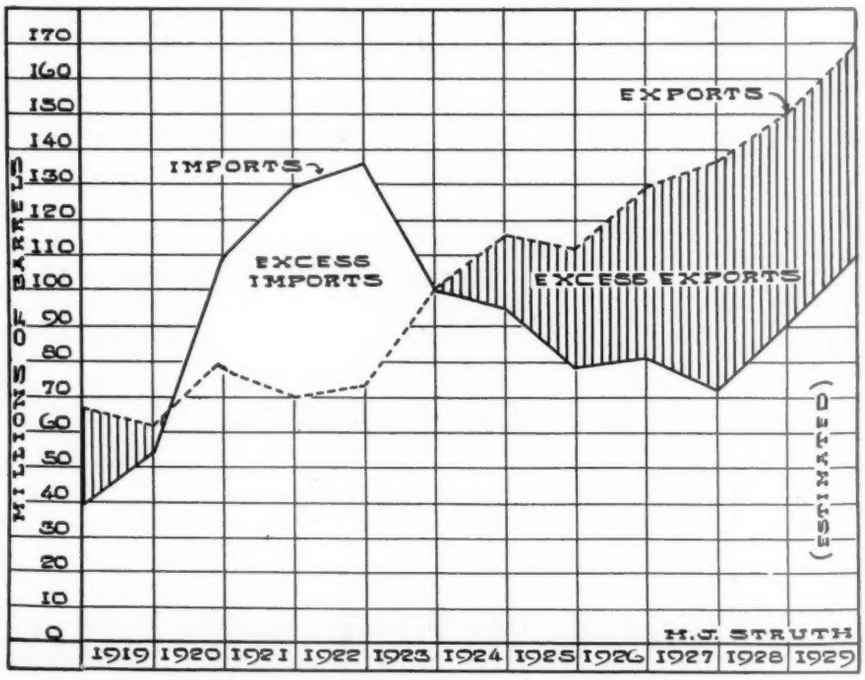
Would Jeopardize Foreign Trade

Records show that only during a period of three years, following the World War, did imports of petroleum and its products exceed exports. The accompanying chart shows this and exhibits the remarkable growth that has taken place in our foreign trade during recent years. While it may be true that imported crude has made our supply appear larger than necessary, it is also a fact that our exports of refined oils have more than offset the effect of growing imports of foreign crude. Thus, while the placing of a tariff on foreign crude might have reduced the American supply to some extent, natural consequences following such action would have undoubtedly wrought havoc with our foreign trade in refined oils. In the final analysis, the petroleum industry would have faced the prospect of a shrinking foreign demand for its products that would have automatically placed the supply situation in as bad or worse plight than advocates of the tariff inferred it to be under present conditions. Perhaps the effect of such a tariff might even have resulted in the removal of American refineries to their foreign sources of crude supply, eliminating important home industry as well as revenue.

A considerable portion of the foreign crude imported is coming from Venezuela, where it is being produced by American oil companies. These companies operate large refineries in the United States, where both domestic and foreign crude is consumed. Naturally, any attempt to curtail the use of foreign crude produced by American companies would be met with the alternative of removing manufacturing facilities to foreign shores. It must also be remembered that refined oils exported by the United States are not all manufactured from foreign crude. In fact, probably only a small percentage of our exported petroleum products are actually produced from foreign oil; large quantities being produced from American crudes. A refiner cannot be censured for refining foreign crude where the advantage in cost is in his favor, particularly if part of his capital is invested in foreign production. Perhaps, also, the time will arrive when foreign oil produced by American companies will furnish a definite need in the United States. The mere fact that the industry is over-producing at this time is not positive assurance against a future supply. As a matter of fact, the industry has really had need for the importation of foreign oil, for even now, our alleged excessive production is inadequate to supply current requirements. Supply and demand figures prove that domestic and foreign requirements are and have been in excess of domestic production of crude. Thus it might be said that there is really a shortage of domestic crude in the United States at the present time, and only the fact that our imports are somewhat larger than the deficit shown by our own production has created an excessive stored supply.

Action of Congress Commended

Apparently, exports of petroleum and its products will maintain the pace established last year, with the prospect of reaching a total for 1929 of approximately 170 million barrels. Since imports of both crude and refined oil are expected to exceed 100 million barrels this year, possibly 110 million barrels, excess of exports over imports will show a margin of at least 60 million barrels. The failure of congress to inaugurate an import duty of $1.00 a barrel on foreign crude proved to be the best solution from every standpoint, to what is really not a problem at all. The real problem of the American petroleum industry concerns the further expansion of foreign markets for petroleum products, a more aggressive policy in widening the scope of American controlled future foreign supply, and more orderly development of domestic oil producing areas through co-operative effort. Importation of foreign crude, if it represents a problem at all, is really only one-tenth of the supply problem; what the industry produces here represents nine-tenths of the current supply.



TREND OF IMPORTS AND EXPORTS OF PETROLEUM AND ITS PRODUCTS — 1918 - 1929

Ribbed Area shows balance in favor of United States, being in excess of imports. White area shows period when imports exceeded exports

TUBBS O. KALE, THE BIG OIL AND GAS MAN

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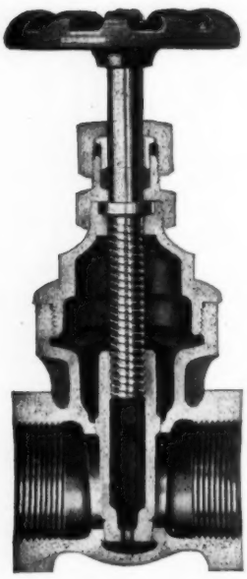

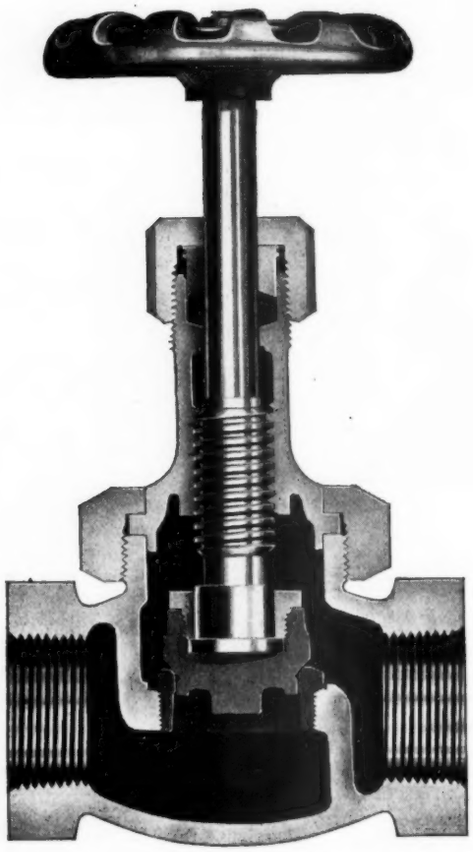

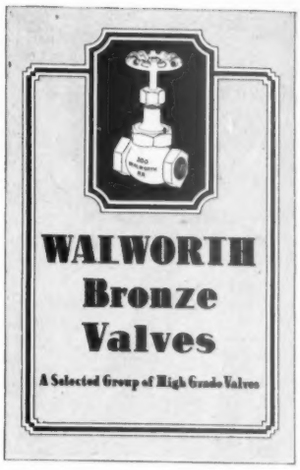

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Oklahoma--Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Skelly Buys Allen Lease From Ramsey Interests

Tulsa.—Skelly Oil Company has purchased from Ramsey Petroleum Corporation a 40-acre lease in the SW SE Section 23-5-7e, Allen field district of southern Seminole County, Oklahoma. The consideration is said to have been $100,000; $40,000 cash, and the remainder in oil. The property is located in the Wilcox sand area of the pool.

One location has been made on the lease and Skelly Oil Company will reimburse Ramsey Petroleum Corporation for building the derrick and spudding. The location is in the northeast corner of the tract. which is known as the Flint-Osborne lease.

Magnolia to Erect Two 80,000-barrel Tanks

Dallas, Texas.—Magnolia Pipe Line Company has placed orders for the immediate erection of an 80,000-barrel steel tank at its Purcell station tank farm, Oklahoma, and also one for its Luling, Texas, tank farm because of congestion of crude at these two points. The Kirk-Morrow Iron Works Company will furnish the steel and erect the tanks, and an insulated roof of the Philip Carey Company will be used on the Luling tank.

Vacuum Abandons Two Davis Parish Wildcats

Houston. — Vacuum Oil Company has abandoned its two tests in the Roanoke district, Jefferson Davis Parish, Louisiana. Those wells have been shut down since the latter part of April. They are located on a prospect which Vacuum Oil Company found by torsion balance.

DeVilbiss 1, the oldest of the two tests, produced a small quantity of 23 gravity oil along with a lot of water when screen was set in a sand at 4200 feet the latter part of January, 1929. There was not enough production, however, to make a well, and the hole was eventually deepened to 5685 feet, at which depth it has been abandoned. DeVilbiss 1 is located in Section 14-9s-4w.

The other test, Earl et al 1, located 3685 feet west of DeVilbiss 1, in Section 15-9s-4w, never had any important showings, although it was drilled to 5920 feet, the depth at which it has been abandoned.

Oklahoma City.—Oklahoma City oil field operators failed to hold scheduled meeting on Tuesday to discuss plans for holding production to outlet capacity so as to eliminate storage campaign due to lack of representation from several companies. Production of field rose to a new peak of 33,087 barrels from nine wells, with three others ready to drill in.

Mid-Continent A. P. I. Meeting Date Set

Tulsa. — The Mid-Continent district of the American Petroleum Institute, division of development and production engineering, will hold its fall meeting October 7 and 8, during the sixth International Petroleum Exposition in Tulsa, according to J. R. McWilliams, chairman of the district.

The program has not been completed, but the major portion of it will be devoted to the methods and results obtained by repressuring in the Mid-Continent area. Some of the exhibits at the oil show will be features at the meetings held in the new auditorium building.

ABANDON OKLAHOMA DEEP TEST

TULSA.—Indian Territory Illuminating Oil Company's Took 1-A, SE SE NW Section 10-1n-11e, near Coalgate in Coal County, Oklahoma, will probably be abandoned at 7890 feet. This test has created much interest because of its wildcat location and the fact that it is the deepest test ever drilled in the state.

Indian Territory Illuminating Oil Company's Cook 1 in the same section drilled for a year with cable tools and made only 1990 feet. It was greatly hindered by cavings. Cook 1-A, test was drilled all the way with rotary tools.

The well was started July 20, 1928. There is only one string of casing in the hole, it being the 9-inch which was set at 4995 feet on December 10, 1928. The hole is said to be in excellent condition at the present time. Cook 1-A has been drilling continuously since setting the surface pipe, with the exception of the time required for setting the 9-inch casing.

It is estimated that the well has cost something like $250,000. It has never had a showing of any kind, and no water has been found since the 9-inch casing was set at 4995 feet. Shale was found most of the way, with some lime.

Caldwell County

Houston. — Three wildcat tests were abandoned in various parts of Caldwell County during the past week. About three miles west of Luling, Detex Oil Company abandoned Keefer 1 in the Edwards lime at 2770-75 feet. The top of the chalk was encountered at 2305 feet. In the F. Berry Survey, about one mile south of Lockhart, Anderson et al's J. P. Horner 1 was abandoned in the Edwards lime at 2020 feet. The test topped the lime at 1975 feet. In the Fentress district, Germany et al quit Douchy 1 as a dry hole in the Edwards lime at 2060 feet, having first encountered that formation at 2040 feet.

Attempted Extension of Raccoon Bend a Failure

Houston. — Humble Oil & Refining Company and Valley Oil Corporation have abandoned Krusliski 1 at Raccoon Bend, Austin County, at 1120 feet. It is the most westerly test that has been drilled in the field, being located beyond Emil Ueckert 1, the edge producer of the west side of the field.

Other recent completions at Raccoon Bend, where all operations are joint wells of Humble Oil & Refining Company and Valley Oil Corporation, include R. Thompson 4 in the W. C. White Survey, completed for 130 barrels at 3551 feet, and R. Deutrich 3, which came in flowing 793 barrels daily on a three-eighths-inch choke from 3500 feet.

Two Oil Wells Completed In Refugio Gas Field

Houston.—Three tests were completed during the past week in Refugio field, two as oil producers, and one as a failure. Oigufer Oil Company completed Ryals 2 on the southeast flank of the field for 700 barrels initial production through a five-sixteenths-inch choke from sand at 3651-56 feet. The other new well was W. L. Pearson's Fox 1, which came in at 3722-37 feet for 550 barrels initial production through a quarter-inch choke. Fox 1 extends the field nearly one mile to the northeast. The test which was abandoned was Houston Gulf Gas Company's Adkins 3, in the Refugio town tract. It was a dry hole at 3910 feet.

Deep Lockport Test

Houston.—The deepest test that has been drilling at Lockport, Louisiana,and one of the deepest in the Gulf Coast, Shell Petroleum Corporation's Miller estate 1, is down 6600 feet in sand and shale.

Simple Method of Measuring The Output of Gas Wells

TO measure the volume or output in cubic feet per hour of a gas well or of any orifice discharging gas into the atmosphere, an instrument called the Pitot Tube Gauge, from its inventor, Pitot, is used. This instrument is remarkable for its simplicity and accuracy of results, and its principle is that the instrument gives the velocity of the current at the point of its application, which velocity, multiplied by the sectional area of the stream, gives the volume of the flow. The simplest form of the instrument is a small tube bent at right angles, the open end of which is inserted in the well mouth at right angles to the flow, and to the opposite end of which is attached a pressure gauge. For convenience the connection may be made with a piece of flexible hose. For wells of light volume, a U-water or mercury gauge is used, and if the wells have a strong flow and show a pressure running into pounds, an accurate steam gauge must be used. The open end of the small pipe should be held just below the top of the pipe or flush with it, and at one-fourth of the diameter from the outer edge.

The formula from which the following tables were worked out was first applied to flowing gasses by Professor S. W. Robinson of the Ohio State University. The specific gravity of the gas is taken at 0.6.

The number of cubic feet per hour that will pass out of a circular opening one inch in diameter at pressure measured by a column of water or mercury, or by a spring gauge, is given in the following tables. The third table contains multipliers for sizes of pipe less and greater than one inch.

For any specific gravity other than 0.6, multiply the result obtained by

$$\sqrt{\frac{0.6}{\text{sp. gr. gas}}}$$

For temperature of flowing gas when observed above 60°F. deduct 1 per cent. for each 5°, and add a like amount for temperature less than 60°F.

In obtaining the approximate flow of a gas well, these corrections are usually neglected.

Example 1—Suppose it is required to find the cubic feet output per day of a gas well or an orifice discharging from a two-inch opening, the gauge in the Pitot tube showing a water pressure of 5.00 inches. In Table 1 opposite this figure we find 3500 cubic feet, which is the volume discharged by a one-inch opening, but as two-inch was the size on which the test was made this amount must be multiplied by the multiplier in the third table for two-inch pipe, which is four. Then we have 3500 × 4 × 24 hours = 336,000 cubic feet, the daily flow.

Example 2—Suppose it is required to find the output per day of a gas well or orifice discharging from a three-inch opening, the gauge showing a pressure of 30 pounds. Opposite this figure in Table 2 we find 37,945; using the multiplier for three-inch pipe in Table 3, which is nine, we have 37,945 × 9 × 24 = 8,196,120 cubic feet, daily output of well.

Acknowledgement

Acknowledgment is herewith made and appreciation extended to the Champlin-Fulton Manufacturing Company for information and data used in this article.

TABLE 1

Discharge of gas of 0.6 specific gravity from one-inch opening corresponding to water pressure in inches:

Pressure in inches	Cubic ft. per hour	Pressure in inches	Cubic ft. per hour
0.10	495	3.00	2,712
.20	714	3.50	2,928
.30	857	4.00	3.130
.40	980	4.50	3,321
.50	1,106	5.00	3,500
.60	1,213	6.00	3 834
.70	1,310	7.00	4,140
.80	1,401	8.00	4,428
0.90	1,485	9.00	4,694
1.00	1,555	10.00	4,950
1.25	1,738	11.00	5,215
1.50	1,915	12.00	5,422
1.75	2,070	13.85	5,800
2.00	2,214	20.77	7,110
2.50	2,475	27.70	8,200

TABLE 3

Multipliers for pipe of other diameters than one-inch:

Size of opening, diameter in inches	Multiplier
1/16	0.0038
⅛	.0156
¼	.0625
½	.2500
¾	.5625
1	1.00
1½	2.25
2	4.00
2½	6.25
3	9.00
4	16.00
4¼	18.00
5	25.00
5 3/16	26.90
5⅝	31.60
6	36.00
6¼	39.00
6⅝	43.90
7	49.00
7¼	52.50
8	64.00
8¼	68.00
9	81.00
10	100.00
12	144.00

TABLE 2

Discharge of gas of 0.6 specific gravity from one-inch opening corresponding to pressure of mercury column and of gauge pressure:

Mercury pressure in inches	Pounds gauge pressure square inch	Cubic feet per hour
.10	.05	1,835
.20	.10	2,590
.30	.15	3,170
.40	.20	3,655
.50	.25	4,095
.60	.30	4,490
.70	.35	4,850
.80	.40	5,180
.90	.45	5,495
1.02	.50	5,790
1.52	.75	7,095
2.03	1.00	8,195
2.54	1.25	9,165
3.05	1.50	10,030
3.56	1.75	10,830
4.07	2.00	11,550
4.57	2.25	12,275
5.08	2.50	12,950
5.59	2.75	13,375
6.10	3.00	14,175
6.61	3.25	14,755
7.11	3.50	15,320
7.62	3.75	15,850
8.13	4.00	16,370
8.64	4.25	16,875
9.15	4.50	17,360
9.65	4.75	17,845
10.16	5.00	18,330
12.20	6.00	19,835
....	7.00	21,555
....	8.00	22,600
....	9.00	23,735
....	10.00	24,815
....	11.00	25,915
....	12.00	25,775
....	13.00	27,695
....	14.00	28,495
....	15.00	29,295
....	16.00	30,045
....	17.00	30,755
....	18.00	31,415
....	20.00	32,730
....	22.00	33,470
....	25.00	35,620
....	30.00	37,945
....	35.00	40,040
....	40.00	41,945
....	45.00	43,605
....	50.00	45,080
....	60.00	47,380
....	75,00	50,975
....	90.00	54.350
....	100.00	55,705
....	110.00	57,055

XUM

PERSONAL MENTION-MEN YOU KNOW

Harry L. Norris, chief scout of the Prairie Oil & Gas Company, Tulsa, and family are spending this year's vacation visiting in Arkansas City, Kans.

John D. Clark, formerly president of the Midwest Refining Company and vice president of the Standard Oil Company of Indiana, was in Casper last week attending the state bar association convention. Clark is a graduate student at Johns Hopkins University, at Baltimore.

H. D. Easton, Shreveport geologist, who recently suffered an attack of malarial fever, has recovered sufficiently to go to the Ozark Mountains of Arkansas, for a short vacation.

Clyde R. Minor, executive vice president of the Gulf Refining Company of Louisiana, who with his wife and youngest son, Edwin Carroll, left Shreveport recently for a two months vacation, has arrived in Honolulu, Hawaii, according to advices received in Shreveport. The party is stopping at the Royal Hawaiian Hotel. They will remain in Hawaii until August 17 returning to the States August 21. On their way back to Shreveport they will stop in Denver.

Bill Sanders has joined Gulf Coast Machine & Supply Company of Beaumont, Texas, working out of Houston for Jack H. Bannister, Houston territory representative of the company. Sanders' new connection became effective August 1. He is an oldtimer in the oil field equipment business in the southwest.

N. W. Hendershot, manager of the Atlas Imperial Engine Company, has returned to Los Angeles after an extended trip to San Francisco.

Joseph B. Dabney, independent oil operator who was stricken July 25 while attending Superior Court in Los Angeles, is recovering from an attack of acute gastritis.

J. J. Maucini, district geologist for the Continental Oil Company (formerly Marland Production Company) at Wichita Falls, has been transferred to Amarillo to engage in work in the Texas Panhandle district.

A. C. Ebie, who took an indefinite leave of absence because of ill health in January, 1928, while vice president and general manager of sales for the Magnolia Petroleum Company, was formally retired on July 24. By co-incidence this date also was Ebie's 65th birthday. Ebie had been engaged in the oil business for 43 years, and joined the Magnolia Petroleum Company upon its organization in 1911 as general manager of the sales department with headquarters at Dallas.

H. J. CORCORAN

of Fort Worth, president of the Reagan County Purchasing Company, a Continental Oil Company subsidiary that is gathering and marketing all oil produced in the Big Lake field, West Texas district, on a life time contract.

M. B. Sweeney, superintendent of production and drilling for the Sun Oil Company in North and Central Texas, has returned to his headquarters at Dallas after spending a vacation in Canada.

Twenty-nine student geologists of the Kansas State Teachers College of Pittsburg, making a trip to Yellowstone National Park and Salt Lake City by motor bus, will stop in Casper, Wyoming, August 5-6. Professor G. E. Abernathy is to be in charge of the party.

Hall Edwards, manager of the Sun Royalty Company, royalty subsidiary of the Sunray Oil Company, with headquarters in Tulsa, is spending 10 days in Ludington, Michigan. Mrs. Edwards and their two children have been in Ludington most of the summer. They will return to Tulsa by auto.

Dale Benedict, statistican and assistant chief scout of the Tidal Oil Company, together with Mrs. Benedict are spending two weeks in the Kiamichi Mountains of Southeastern Oklahoma, vacationing.

B. E. Hull, president of the Texas Pipe Line Company, left Houston last Saturday morning by air plane on a trip west. He was accompanied from Odessa to El Paso by W. H. Shields, assistant superintendent of the West Texas division of the Texas Pipe Line Company; and from El Paso to Los Angeles by F. P. Dodge, general superintendent of the Port Arthur refinery of The Texas Company. The plane arrived in Los Angeles Sunday afternoon. Hull will go from Los Angeles to San Francisco, where he will join his wife and two children, who have been in Honolulu, Hawaii.

L. A. Bell, formerly field manager the Trinidad Leaseholds, Ltd., at Fyzabad, Trinidad, has joined the personnel of the Vacuum Oil Company at Houston as assistant to W. C. Thomas, who is general superintendent of fields.

Joe J. Fox, formerly of Houston Gargoyle, a weekly news magazine, has been appointed advertising director of the Houston Natural Gas Company, the Houston natural gas distributing company affiliated with the Houston Oil Company and the Houston Pipe Line Company. In co-operation with A. B. Foster, public relations director, he will have charge of advertising and news publicity.

L. P. St. Clair, executive vice president of the Union Oil Company, is on a combination business and pleasure trip to the Pacific Northwest.

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Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Barbers Hill Active; Production Increases

HOUSTON.—With three recently completed large producers still holding up well, the Barbers Hill field, Chambers County, continues to rank among the best of the Texas Gulf Coast fields in daily production. As of August 5, 1929, the production for the field was 12,578 barrels daily. Barbers Hill, furthermore, ranks first among the coastal fields in field activity. Counting several locations and wells rigging up along with the wells drilling, there are 27 operations in the field.

Republic Production Company's Kirby 1, semi-wildcat, which opened production in deep sands on the southeast flank of the dome a little over a week ago, is producing 3000 barrels daily. Mills Bennett Production Company and Moody Corporation's Hamman-Armstrong 2, completed about the same time in the north part of the east flank of the dome, is flowing 3100 barrels daily. Rexal Oil Company's McLean 2, finished about a week ago for 1500 barrels initial production is still flowing at about the same rate.

Following the completion of Kirby 1, the Republic Production Company has made location for Kirby 2, and various tests have been started in the immediate vicinity by other companies, some as offsets. E. B. Daniels et al have locations for Woodward 1 and Woodward 2. Sinclair Oil & Gas Company has locations for McKinney 1 and Wilburn 1. Sun Oil Company is drilling at 1000 feet in gumbo in Amanda McKinney 1, and has locations for McKinney 2 and Wilburn 1. Yount-Lee Oil Company has a derrick up for Woodward 1. That Company's Kirby 1, located south of the Republic Production Company's producer, is drilling shale and lime at 5285 feet.

Develop South Part of Field

In the south part of the field, where deep production was opened early in 1929 by Yount-Lee Oil Company's Chambers County Agricultural Association 1, several tests are drilling. Yount-Lee Oil Company's Chambers County Agricultural Association 4, in that part of the field, is the second deepest hole in the Gulf Coast, being at 7550 feet in water sand. It is located 150 feet south of a line through six producing wells, including the Yount-Lee Oil Company discovery well of the south flank. On the same lease on which this deep test is located Yount-Lee Oil Company is coring sand at 5085 feet in No. 7. Sun Oil Company's Chambers County Agricultural Association 3 is drilling shale and lime at 2966 feet.

On the northwest flank of the field the first Oligocene test, Humphreys Corporation's Kirby A-8 is drilling sand rock at 5368 feet.

The first test on the southwest side of the field with the deep sands of the Oligocene as the primary objective, Mills Bennett Production Company's Barrow 7 is drilling below 3900 feet, screen having been pulled. At that depth Barrow 7 has been producing oil from the Miocene. Hope for production at a lower depth in Barrow 7 is strengthened by reason of its proximity to Barrow 5 of Mills Bennett Production Company and the Moody Corporation. No. 7 is about 225 feet west of No. 5. Barrow 5 was originally a 100-barrel producer in the Miocene at 3470 feet, but was drilled deeper later and in March, 1927, came in for 800 barrels daily at 4551 feet in the Oligocene.

Tests Nearing Oil Horizon

In the north end of the east side of the field numerous tests are drilling, including several that are near the producing level. Humphreys Corporation's Tarbutton 1 is drilling in lime rock at 5033 feet; Kirby H-1 is drilling hard lime at 4781 feet; Kirby H-2 is setting casing over an oil sand at 5098 feet; Kirby H-3 is drilling shale at 4490 feet, and Ilfrey 1 is setting seven-inch casing over on oil sand at 5075 feet. Rexal Oil Company's McLean 3 is drilling gumbo at 3016 feet; its Smith 1 has set screen at 5174 feet and is running 2½-inch tubing, and Cockburn 1 is drilling at 5000 feet. Moody Corporation's Ilfrey 1 has an oil sand at 5140 feet and is reaming to set screen. Mills Bennett Production Company's Smith 3, which was drilled to a total depth of 5381 feet, has been sidetracked and is drilling at 1892 feet in the new hole.

On the extreme north end of the dome Mills Bennett Production Company's E. W. Barber 1, which was temporarily abandoned in water sand at 6262 feet about the middle of June, after penetrating 1200 feet of Oligocene formations, is now rigging up to sidetrack. It was revealed through a survey of the hole that the well is not straight from 3600 feet down, and so the first hole will be sidetracked at that point. It is hoped that by straightening the well production may be obtained, as the sands will then be encountered nearer to the edge of the dome.

200 Barrel Flow in Lost Lake Test Adds New Dome

HOUSTON.—Another salt dome was added to the long list of oil producing fields in the Gulf Coast when Pure Oil Company's Mayes 2 at Lost Lake, Chambers County, came in August 1 flowing 23 gravity crude at the rate of 200 barrels daily from sand and shale at 2748-82 feet. The gauge upon which the initial production was based was for a 15-hour period, during which the well produced 125 barrels of oil, flowing by heads at intervals of 1½ hours. Temperature of the crude was 80 degrees, and the gravity as given above is corrected.

Lost Lake dome was discovered in 1927 by the Pure Oil Company, using seismograph, and that company began drilling there in October, 1927, having obtained leases covering practically the whole dome. The newly completed oil producer is the seventh test completed in the field, and although it is the first flowing oil well, one large gas well had previously been completed, and another test, the first of the area, produced some oil by bailing, in non-commercial quantity.

All of the drilling has been on the southeast side of the dome in the E. H. R. Wallis Survey. The first test, Lost River 1, bailed a little oil at 3605 feet, and later, several barrels at 3670 feet, but was subsequently deepened and hit cap rock at 3950 feet. Then about a mile to the southwest three tests, Lost Lake 1, Lost Lake 2, and Old River Lake 1, were abandoned dry in cap rock. Also at a point about 2000 feet northwest of the first test, another hole, Lost River 2, was abandoned dry in cap rock.

Following the unsuccessful efforts to obtain production southwest and northwest of the first test, the Pure Oil Company then began drilling due west of the first test, on the Mayes land. Mayes 1 came in the latter part of March, 1929, as a 40 million foot gas well at 2071 feet. It is located 1600 feet west of the field's first test, Lost River 1. Mayes 2, the new oil producer, is located 750 feet southwest

of Mayes 1, and in line with Lost Lake 1. Mayes 3 is now drilling. It is located 400 feet east of Mayes 1, and in line with Lost River 1. At 2152 feet recently it tested salt water, and subsequently while being worked on it had a gas blowout. An effort is now being made to pull screen to drill deeper. Derrick is up for Mayes 4.

New Serpentine Field In Caldwell County

Houston.—A new serpentine field has been opened in western Caldwell County through finding of production in a wildcat test, Buchanan et al's Jeffrey 1. This well is due south of the town of Dale, and about 12,000 feet southwest of Dale field. The top of the serpentine is at 1740 feet, and total depth of the hole is 2050 feet. In 12 hours it swabbed 50 barrels, and it will be put on the pump.

A great deal of wildcatting has been in progress in this area during the past few years, operators having been encouraged through development of oil production in the serpentine at both the Dale and Lytton Springs fields nearby. Dale field, discovered in 1927, is now producing around 400 barrels daily, and Lytton Springs has a daily yield of about 1000 barrels.

San Felipe Dome Test to Be Drilled Deeper

Houston. — Kirby Petroleum Company is pulling screen in D. Vaughn 1 on the San Felipe salt dome, Austin-Waller Counties, in preparation for drilling deeper. Last week an Edwards test was made, indicating oil and gas in considerable quantity, but when screen was set, the well began flowing fresh water. Total depth of the hole is 3005 feet. When the Edwards test was made the fresh water was shown to be present, but it was believed that it was mostly wash water. Three joints of screen were set in the sand.

This test is on the Waller County side of the dome, being close to the center of the top of the salt plug, and about 1¼ miles east of Gulf Production Company's Jackson 1, the only other test that has been drilled on the dome. It hit the top of the cap rock at 3230 feet, and when casing was set at that depth the well flowed sulphur water with a slight show of oil. When it was deepened later it encountered a cavity and was abandoned at 3350 feet.

The presence of a salt dome here was made known in 1927 through a seismograph survey by the Gulf Production Company, which secured leases on most of the acreage on and around the dome. The Kirby Petroleum Company's test is on an original Gulf Production Company lease, the former having entered an agreement with the latter, providing for drilling by the Kirby Petroleum Company and sharing by both companies of whatever profits may be obtained.

Darst Creek Operators to Curtail Drilling

Houston. — In line with the principles underlying the present general demand for conservation of petroleum, and in view of the unfavorable current market condition, particularly as concerns the grade of oil involved, major producers holding leases in the newly opened Darst Creek field, Guadalupe County, including The Texas Company, Gulf Production Company, and Humble Oil & Refining Company, have agreed to cooperate in holding activity there to a minimum for an indefinite period.

In accordance with the agreement, the only test that is now being drilled there is The Texas Company's Lemmie Anderson 1, the only direct offset to the recently completed wildcat producer, The Texas Company's Dallas Wilson 1, which came in July 18, flowing 1500 barrels of 36.2 gravity pipe line oil daily from the Edwards lime at 2610-11 feet. The well is now shut in, no storage or pipe line outlet being available for its production.

The Texas Company's Lemmie Anderson 1 was drilling August 5 in chalk at 2353 feet. Prior to the agreement among the major producers interested in the field, The Texas Company had started drilling Lemmie Anderson 2, but that test is now shut down, in accordance with the agreement, at 660 feet. The same company had also rigged up on Lemmie Anderson 3, and it is shut down. Lemmie Anderson 4 will remain a location, and Dallas Wilson 2 a derrick.

Humble Oil & Refining Company and Gulf Production Company had each made several locations, but the agreement to limit activity was made before they had built any derricks. Gulf Production Company locations are Cercey Anderson 1 and Tadlock 1, and those of Humble Oil & Refining Company are D. D. Baker 1, D. D. Baker 2 and Yates-Wilson 1.

Along with the postponement of drilling, there has also been a temporary abandonment of plans for proposed pipe lines and steel tankage.

Hankamer Test Drilling Deeper

Houston.—Gulf Production Company's Boyt 2, the second test of the Hankamer field, southern Liberty County, is drilling deeper, following an unsuccessful effort to make a producer of it late last week. One joint of screen was set in a sand around 2900 feet, and oil rose 1000 feet in the hole, but the well would not flow. On August 6 the test was reported drilling at 2917 feet.

Hankamer was discovered in 1928 by seismograph, and the first test drilled there, Gulf Production Company's Boyt 1, was completed a producing well. It came in June 6, 1929, flowing 700 barrels daily of 20 gravity pipe line oil from broken sand at a total depth of 2674 feet.

Hankamer is one among several other Gulf Coast fields found by geophysical instruments and opened for production through the first test drilled; other notable examples being Sugarland, Fort Bend County, and The Texas Company's new field north of Port Neches in Orange County.

Although this new field in Liberty County has had only the two above named tests drilled in it, including the one that is still unfinished, it is believed, from evidence already revealed, that it is a non-salt dome field bearing resemblance to the Orange field, Orange County.

Port Barre Salt Dome Has Third Completion

Houston. — The Texas Company completed Botney Bay Fee 2 on the Port Barre dome, St. Landry Parish, Louisiana, for 1100 barrels initial production on August 1, and early this week the well was reported to be still making around 1000 barrels daily. This is the third test finished at Port Barre, and it is at present the only producer of the field.

Botney Bay Fee 2 had a blowout at 3620 feet about the middle of June, and later screen was set at that depth and the well came in flowing around 100 barrels of oil per hour; but in a short time it quit flowing. Subsequently it was deepened a little to the present producing depth.

Clay Creek

Houston.—Sun Oil Company has abandoned Hunt 1 in the Clay Creek field, Washington County, at 2220 feet. That company, sole operator in the field, has a gas showing in Queke 1 at 770 feet, and is drilling at 750 feet in Cockrell 1. Derrick is up for Landroff 1.

The average daily production of the Clay Creek field during the past week was 2250 barrels.

Test Will Be Drilled East of Davis Hill

Houston.—The Gray-Tex Oil & Gas Company, Sherman, Texas, is preparing to drill a wildcat test on the Gardner land in Liberty County, about six miles east of Davis Hill. The location will be east of the Trinity River. The same interests about two years ago put down a test, Gardner 1 (drilled by Miller Drilling Company), immediately east of the river. That first test is reported to have had oil showings at 3400 and 4200 feet, but it was abandoned at the latter depth. The second test, which soon will be started, will be located about 1¼ miles east of the first.

Summerland Reviving

Summerland, Calif.—This district, which has been one of the oddities of the industry for a generation, is now coming in for a new play, this time the attraction being a new zone found at the shallow depth of 100 feet. Several new locations have been made on the strength of the Lincoln Drilling Company's recent semi-completion on Section 21-4-26, which flowed and pumped 20 gravity oil at a 400-barrel rate for several days. Aquarium Oil Company and Gaviotta Oil Company are recent entries into the district.

Louisiana-Arkansas Field Notes

Dixie Field Continues Active Despite Unfavorable Showings

SHREVEPORT.—In the Mount Holly district of Ouachita County, Arkansas, T. B. McDonald and the McDonald Oil Corporation's Wilson C-1, Section 25-15-18, is flowing from 200 to 250 barrels a day of badly cut oil through 2½-inch tubing after being swabbed. In the same section the Wilson B-3 well, which Houston Oil Company recently took over from the McDonald interests, has gone "dead" and arrangements are being made to run a sand pump in the well. In this same district, George Kouri and associates, who went back to their old A. Wilson 1 location in Section 24-15-18, have spudded in.

Two new locations were made late in the week in Mount Holly. E. M. Jones made location in SE NW Section 26-15-18 for Wilson A-1, while Atlantic Oil Producing Company and Jones made location for Allen C-1 in NW NW Section 25-15-18.

McDonald Oil Corporation missed a drill stem test from 2717 to 2734 feet in Wilson A-2, Section 25-15-18 but is reaming to make another test. This well has an elevation of 167.7 feet and topped red beds at 2716 feet. From that depth to 2720 feet red gumbo was encountered and for the next five feet hard red shale with streaks of blue shale. The next five feet was through hard blue shale with streaks of red shale. The succeeding three and a half feet was a hard oil sand and the next half a foot was a hard crystalized sand cap.

Dixie Field Active

Wilson B-3 of the Houston Oil Company, which has gone "dead," had been completed as the best well in the district, coming in at total depth of 2785 feet making 1140 barrels of oil.

Despite the fact that salt water holes and small producers continue in Dixie field, there are still 22 rigs operating in that area. Three salt water holes and a 10-barrel producer was the total of completions there for the last seven-day period.

More than a mile to the southeast of production Lide and associates abandoned Oden 1, Section 21-19-14, at total depth of 2560 feet as a salt water hole. In Section 17-19-14, in the same section with the discovery well, abandonments were recorded for Standard Oil Company of Louisiana's Hunter 5, at total depth of 2412 feet and Hunter 7, total depth 2442 feet.

Only one producer in the field is maintaining an output of consequence. This is Gulf Refining Company's Oden 3, Section 18-19-14, which continues to flow over 600 barrels daily. The daily yield of the field is around 1200 barrels. Some oil men think the field has already begun to play out.

Two miles north and slightly west of Dixie production and slightly east of the old Shirttail Lake region, Simplex Oil Company was forced to re-cement six-inch casing from 2459 to 2468 feet. A. H. Tarver's Glassell-Dickson 1, Section 31-20-14, also north of Dixie and southeast of Shirttail Lake, which hit the Nacatosh high at 795 feet, is now drilling at 2100 feet and should be ready for a test in the Woodbine within a week or 10 days.

Three new locations were announced for Dixie or its immediate environs during the week. D. C. R. Oil Company with Crystal Oil Refining Company, has secured permit to drill Oden 2, Section 20-19-14. Lide and Associates have also made location for Levee Board 1, Section 24-19-15, and Hunter Estate 1, Section 22-19-14. Derrick is up for the Levee Board test.

Three Locations

The three new locations in Dixie were the only North Louisiana wildcat locations made during the week aside from one in Webster Parish. The latter is F. M. Fuller's Monzingo 1, NW SE Section 27-18-8w. There were 10 locations in North Louisiana announced during the week, the old Pine Island field getting five and Cotton Valley, Webster Parish, securing one. Arkansas' six locations included one wildcat in Union County, Modisett and Associates' Union Sawmill 1, SW SW Section 1-18-14, aside from three in Mount Holly, already mentioned.

Magnolia Petroleum Company, after waiting for some time for a standard rig, has finally put Atkins 1, Section 4-22-9, Webster Parish, on the southeast edge of the old Shongaloo gas field, on the beam, total depth being 2665 feet. The well is pumping 66 barrels of oil and 69 barrels of salt water daily.

An effort to extend the southeast producing district in Champagnolle more than a mile south apparently has ended in failure, late reports indicating that Root Refining Company is tearing down rig to abandon Oliver 1, Section 18-17-13, Union County, Arkansas. In the southern part of the old Champagnolle field proper, Magnolia Petroleum Company in a drill stem test of Alice Gregory 1, Section 15-17-14, from 2740 to 2751 feet, tested three million feet of gas and is arranging to core deeper.

Arkansas Wildcats

T. R. Brown's Spencer 1, Section 18-18-22, a wildcat in Columbia County, Arkansas, tested dry Friday in a drill stem test from 2740 to 2760 feet. Streaks of sand and shale with shells were encountered from 2752 to 2760 feet. Operators are now reaming out the rat hole.

In Calhoun County, Arkansas, Ohio Oil Company is drilling at 3005 feet in Stout Lumber Company 1, Section 31-14-12. In Section 11-12-16 of the same county, Phillips Petroleum Company and associates are drilling at 3130 feet in Eagle Mills Lumber Company, and have spudded in Freeman-Smith Lumber Company 1, Section 25-16-13. Arrendale is arranging to run a testing tool in 21 feet of broken sand immediately above 2119 feet in Gallagher and Nelson 1, a wildcat in Section 18-18-7, Union County.

A wildcat test in North Louisiana which has been going steadily forward but without exciting much comment has now encountered an oil show in a core from 4207 to 4209 feet. This test is Phillips and Associates' School Fee 1, Section 16-16-4e, Ouachita Parish.

North Louisiana's deepest test, Magnolia Petroleum Company's McCook and Hibbler 1, Section 22-21-10, Cotton Valley, Webster Parish, is milling out cones at 6557 feet. Dixie Oil Company's Robertshaw 92, Section 13-21-15, Caddo Parish, Pine Island, next in depth in this area, is coring sand and pyrites at 6380 feet. Gulf Refining Company is drilling blue shale with streaks of grey lime at 5588 feet in Caraway 1 in the Patterson Survey of Shelby County, East Texas.

In the rank wildcat territory of Jackson Parish, George O. Baird is drilling in hard sand at 3295 feet in Tremont Lumber Company 1, Section 24-16-1w, after testing 1400 feet of salt water at 3280 feet.

News From Rocky Mountain Fields

Power Company Plans 10 Wells on Bowdoin Dome

Great Falls, Montana. — Ten wells will be drilled for gas on Bowdoin Dome structure, northern Montana, by the Jones Oil Company for the account of the Montana-Dakota Power Company, which has recently appropriated an additional $100,000 for the work on this structure. Gas from properties of the Big Dome Oil & Gas Company has been secured for the use of the Montana-Dakota Power Company, which is laying several lines in northern Montana and the Dakotas with the idea of developing a supply of gas sufficient to furnish the Twin Cities.

It is hoped that gas for the towns of Malta, Saco, Glasgow, and other "High Line" towns, will be furnished by the coming winter.

The company plans ultimately to lay a line to Chester on the west, and perhaps, secure more gas in the future from the Sweetgrass Hills ditrict.

Los Animas County

Trinidad, Colorado. — Helium Company of Louisville, Kentucky, has completed three gas wells in Las Animas County, southeastern Colorado. The gas is found in the lower part of the Morrison shales at 980 feet. This company has established headquarters at Thatcher, Colorado, a few miles from the line of the Atchison, Topeka & Santa Fe railroad, and will build a condensing plant there. In addition to the plant itself, the company will construct about 20 buildings for employes.

Output Increases From Well in North Montana

Great Falls. — Production from the discovery well of the Sunburst Oil & Refining Company on the Bear's Den structure, a short distance from the Canadian line in Montana, continues to increase as the well is pumped. The initial production was about 34 barrels, and the well is now producing 40 barrels. The company will drill another well immediately on this structure, and a group of Butte men plan a campaign of five wells to be started at once.

This discovery is particularly valuable. Wells drilled on the structure have two chances for production—gas in one horizon and oil in another, both commercial. Most wells should develop both. The high grade crude will command a handsome market in Montana, and the various gas projects under way will make the gas production particularly valuable. Many scouts of major operators and many independents interested in the future of the Montana industry have visited the well since its completion a few weeks ago.

Company Is Organized to Exploit Natrona County

Casper.—Wyalta Oil Company was recently organized in Casper for the purpose of taking over the holdings of the Spindletop Syndicate in Natrona County and for the operation of the three producing wells there and the drilling of more. The new company is composed for the most part of Canadian capitalists who are entering the oil game in Wyoming on an ambitious scale.

Another shale well is to be drilled on Teapot Dome on acreage held there by the Wyalta Oil Company less than a half-mile east of the 30,000-barrel shale gusher, drilled by the Mammoth Oil Company, which flowed all over the country before it was shut in and killed. The Shannon sand is expected around 900 feet and the shale production around 2000 feet.

Upon completion of the Teapot test, the Wyalta Oil Company will start an attractive drilling campaign on the Spindletop structure, and will place the completed wells on production.

Brigham Young's Well to Have Neighboring Test

Evanston, Wyoming.—A test for oil which will be surrounded with somewhat of a glamor of romance is that which is to be drilled on the Hilliard Flats structure, southwestern Wyoming, by the Ensign Oil Company near the old Brigham Young well. This latter well was hand-dug in 1848 by Mormon pioneers, and is known as the Brigham Young well. They developed an oil seep and followed it 40 to 50 feet into a hill, and to this day there is still a small flow from the original "diggins". The Ensign test will be spudded in a short distance from the seep.

Bannatyne

Great Falls, Mantana.—John Hammond of New York is drilling an interesting wildcat well northwest of Bannatyne field in an endeavor to extend the producing territory of Bannatyne. Ralph Arnold is geologist for this venture and the well is to be drilled to the Madison lime, through the principal producing sand of Bannatyne — the Emerick.

Casper Offices Closed By Continental Oil

Casper.—The Continental Oil Company's Casper headquarters have been abandoned and the personnel of the offices is dismissed. The machine shop at Perkerton and that at Big Muddy are shut down. The warehouses in Casper district are being closed, materials are being sold.

M. J. Foley, general manager for the company's affairs in the northern division of the Rocky Mountain states, is still in charge. His headquarters for the present remain in Casper.

Stubbefield Is Handling Hotel Reservations

Tulsa.—Activities of the Internationla Petroleum Exposition and Congress are being turned to the provision of accommodations and comforts for the delegates which will come for the week of October 5 to 12.

George Stubblefield, who was on the staff of the general manager last year, will again take care of hotel reservations and housing, working under the direction of William B. Way. He will have headquarters at the exposition office, 124 East Third street. All inquiries in regard to accommodations will be handled by him.

Tulsa hotels are reporting all space taken for the Exposition. For that reason it will be necessary to provide space in apartments and homes, something that has not been necessary in past years. Several new hotels, built in the past year, have failed to take care of the demand for space.

Validation of railway tickets will be cared for this year at the Exposition grounds. In order to get the advantage of reduced rates, buyers of tickets will have to ask for certificates at the time of buying transportation to Tulsa. When these are validated in Tulsa, the reduced fare will be possible for the return journey.

Garvin Test Finds Water

Tulsa. — Tidal Oil Company, Twin State Oil Company, Simms Oil Company and Gardner Petroleum Company's community wildcat test on the Halberson farm, in the C SW NE Section 8-4n-2e, northeast of Pauls Valley, in Garvin County, found the Simpson sand at 3930 feet and entered the Wilcox sand at 4022 feet, where it later picked up water. This is the second test on the block that has looked exceedingly good that has failed to produce.

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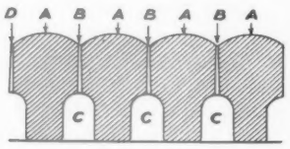
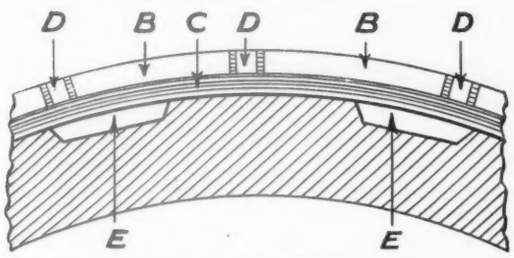


Enlarged View of Wires in Cross Section

On account of the rounded top of the wire, the points A-A-A-A receive the abrasion as the strainer passes down the rocky sides of a crooked hole, and the edges of the entry slits B-B are protected.

The broad, square-faced spacing lugs, "D" — hold the wires immovably in place.

The entry slit "B" is slightly larger at the discharge side where the fluid enters the passage way "C" thus permitting the fluid to pass more freely between the wires to the vertical grooves E-E running lengthwise in the surface of the screen pipe.



Enlarged End View of Portion of Screen

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The screen you have long been looking for . . . . to give you maximum production . . . . to control your sand most perfectly.

The efficiency and unvarying reliability of the GETTY SCREEN has long been known. Ask any Old Timers why they prefer it in wells where the sanding problem is serious.

STRUCTURAL STRENGTH

The strongest Wire Wrapped Screen on the Market

THE REASONS WHY: The superior method of construction developed in the GETTY FACTORY consists in rolling the mesh of the screen into the T-head of the wire forming solid, substantial, square-faced spacing lugs. During the coiling process, the wire is under severe tension and strong lateral pressure so as to grip the pipe with great firmness, each coil being itself held in a vise-like grip by the adjacent coils. The wrapping is thereby secured immovably in position.

As evidence of this strong construction, in localities where the gas pressure is hard to control, the GETTY SCREEN has been used successfully as a drill stem to drill down into place where it is set and the well finished.

ACCURACY OF SPACING

The accuracy of spacing which characterizes GETTY CONSTRUCTION has long been known. This is due to accurate standardization, correct methods, and careful supervision. Accuracy of spacing with structural strength constitutes a guaranty that the GETTY SCREEN will remain accurate after installation in the deepest wells regardless of the grief encountered while passing down by the rocky walls of crooked holes. The abrasion on the wires due to dragging against the walls of the hole has little or no effect.

FREE RECEPTIVE CAPACITY

All the exterior surface is a screen. The construction is such as to provide for the greatest possible degree of freedom for the travel of fluids from the point of entry to that of discharge at the interior of the pipe. STUDY THE ILLUSTRATIONS ABOVE AND NOTE THE ADVANTAGE IN SCREENING CAPACITY OVER OTHER SCREENS.

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News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Rush of Drilling Starts for Third Clarke at Santa Fe Springs

LOS ANGELES.—With the O'Connell zone apparently past its peak and due for a gradual decline, interest has shifted to the third Clarke zone, which is a far more important sand than generally suspected. While the formation has been almost completely overawed by the O'Connell zone, it is now coming into its own and will be developed, notwithstanding its great depth and the difficulty in obtaining a water shutoff around 7800 feet.

Eighty-five wells will be drilling for the third Clarke sand within a few weeks. About 35 wells are now in active pursuit of the sand and companies have signified their intention of starting 50 more within a few weeks. Shell Oil Company alone has eight wells drilling for the zone and has made nine additional locations. This company has two leases which did not prove uniformly productive in either the O'Connell or Buckbee zone.

Cost of drilling to the third Clarke zone has been a contributing influence toward the reticence of many operators, but during the past week the announcement was made that more than 20 wells will be started from the surface. The cost of deepening, where the O'Connell zone failed to produce, has not been so high, and it has been these wells that have been finished. The decision of a major company to start several wells from the surface, with the third Clarke sand the objective, has had a favorable effect on further development.

Effect of New Law

The status of the field is liable to change after September 1, due to the inauguration of the new gas saving law. This impending statute has had a disconcerting influence among those who would like to develop their holdings. The thought, however, that curtailment may "blow over" before the third Clarke zone starts a big flow of crude to market is somewhat comforting, while the open belief in some quarters that the gas saving law will not have the "teeth" it is supposed to have is another factor which makes for the early development of the zone.

The gas waste is enormous and state authorities are sure to attempt enforcement at Santa Fe Springs. If effective, even the O'Connell zone wells will be cut back to only a fraction of their potential production. In case of a sharp reduction, wells drilling for the third Clarke zone will suffer, at least temporarily. Legal effort to force the state from interfering with production of wells is contemplated. If the track is cleared and these test cases are rushed through the courts, it may take only a short time to get a final decision.

Completion of 12 wells during the week was more than enough to offset the decline, and the field total at the end of the period was slightly higher than the previous week. Average initial production was about 3500 barrels, including one third Clarke completion.

About 30 wells will be completed in the O'Connell zone during the next month, with a good sprinkling of third Clarke producers anticipated. Ten wells are drilling in and six are cemented over the third Clarke zone, while four are ready for completion. The impending completions are largely edge tests and may not be representative of inside leases.

Slow Decline Expected

The O'Connell zone still has much of its old fire, despite the 80 wells which have been completed in the sand. Wells finished in the little developed areas come in with much of the life of the earlier producers. The thickness of this and the upper Clarke zone, which are produced together, makes for a slow decline.

Completion of the Standard Oil Company's Weisel 13 as a 3700-barrel producer in the third Clarke sand at 7975 feet probably was the outstanding development of the week and certainly placed the zone on a very high plane. The oil was 32.6 gravity and showed a cut of only one-tenth of one per cent. The well was originally drilled to 8033 feet and plugged back as a precaution. Located in the western edge of the field, the new well makes the third Clarke sand look good over an area almost twice as large as that productive in either the Buckbee or O'Connell zones. The final shutoff was made at 7803 feet with 6⅝-inch casing. An absolutely clean production from below such a great depth is a distinct tribute to the art of cementing oil wells. The casing pressure ran up to 1550 pounds, while the tubing pressure rose to 400 pounds. Standard Oil Company of California has not been especially successful in development of the Buckbee and O'Connell zones and the completion of the best well yet finished in the third Clarke zone gives the company a good start in its quest for deep production.

LONG BEACH, Calif.—Coring steadily ahead, Shell Oil Company has reached a depth of 9220 feet in Nesa 11, the Signal Hills test which is attracting worldwide attention. Cores taken from around 9200 feet showed a fair grade of oil sand and hard shale. Streaks of oil sand have been cored for more than 100 feet.

The sensational performance of Universal Consolidated Oil Company's O'Connell 3 is taken to mean that the third Clarke zone near the center of the field will be a great producing sand. The well was drilled to 7714 feet, a string of 4¾-inch casing cemented at 7668 feet and the cement drilled out only four feet below the shoe for the shutoff test. The well flowed at the rate of 3700 barrels per day with only the four feet of cement drilled out. It was the company's original intention to kill the well and drill out to bottom, but it may be allowed to produce in its present condition.

General Petroleum Corporation's Jalk 113, deepest drilling well in the field, will be completed in the third Clarke sand at 8363 feet. The final shutoff was made at 7965 feet with 6⅝-inch casing and 400 feet of oil sand and shale has been cut. A good well in this part of the field will prove another section of the large belt which was not productive in either the Buckbee or O'Connell zone.

Other Completions

By including the most recent completions, production from the third Clarke zone has jumped to 15,000 barrels from 11 wells. This sand has become a factor in the field total, with odds against it.

Field production at the end of the week was about 284,000 barrels, divided by

zones as follows: Nordstrum, 21,000 barrels from 25 wells; Buckbee, 24,000 barrels from 44 wells; O'Connell, 200,000 barrels from 77 wells; third Clarke, 15,000 barrels from 11 wells, and shallow zones, 24,000 barrels from 218 wells. The average for the week was slightly under this figure.

Bandini Petroleum Company, already one of the largest producers in the field, completed Off 8 at 6850 feet in the O'Connell zone with an initial production of 9000 barrels. The oil was 33.2 gravity and showed a cut of less than one per cent. This was the largest completion of the week. The company's Off 16, also completed in the O'Connell zone, came in with an initial production of 5000 barrels from 6847 feet. The oil was 33.4 gravity and clean. These two wells brings the company's total production to a very high figure.

Shell Oil Company's Slusher B-2, located on a lease which produced little oil in either the Buckbee or O'Connell zone, was re-completed in the third Clarke zone as a 2200-barrel producer at 7770 feet. The oil showed only a small cut, a very favorable indication that water will not cause more trouble in this deep sand than in the shallower zones. The company's G. H. N. 13 did not fare so well in the O'Connell zone, having been completed at 6845 feet with a gross production of 2500 barrels. The cut ran above 40 per cent. and the well may be killed and re-cemented.

General Petroleum Corporation added to its large production with the completion of Hill-Midway 103. This well had an initial production of 4300 barrels of clean oil.

Wilshire Oil Company, discoverers of the Buckbee zone a little more than a year ago, completed Cecelia 1-B as a 4000-barrel producer at 7100 feet. Nearly all of the O'Connell and upper Clarke zones were included below the final shut-off.

Other good wells of the week included H. A. Bardeen's No. 2, a 2000-barrel producer at 6848 feet; Union Oil Company's Alexander 16, completed in the O'Connell zone at 6882 feet with an initial production of 2600 barrels, and Universal Consolidated Oil Company's O'Connell 2, a 1300-barrel well in the top of the O'Connell zone at 6459 feet.

Ventura Field Will Not Be Developed Hastily

Ventura. — Regardless of the future demand for crude in California, Ventura will not be developed as intensely as the critical areas of the Los Angeles basin. The cost of drilling wells, likelihood of obtaining only small producers the fact that most of the field is controlled by two companies and the desire to sensibly develop the area are some of the chief reasons why Ventura has not been and will not be drilled in a semi-townlot manner. The oil is very desirable and the largest operators are anxious to maintain a steady production, but the permanency of the field is of vital interest to all concerned.

Associated Oil Company and Shell Oil Company are each drilling about 15 wells, while the smaller operators are active with eight wells. This steady drilling program probably will continue through the greater part of 1929 and 1930.

Washington Reports Acceptance Of Kettleman Hills Agreement

WASHINGTON, D. C.—Acceptance of the Kettleman Hills conservation agreement by a sufficient number of operators to insure its operation was announced August 5 by Secretary of the Interior Wilbur, and although all the operators involved have not yet signed, it was stated at the department, a slowing down program is being put into effect on all three domes.

Under the agreement, drilling activity in the middle and south domes will be suspended until January 1, 1931, and in the north dome until July 1 of that year, although provision is made for its termination before those dates if an actual market need of oil from the Kettleman Hills field develops.

The area covered by the agreement consists of 150 square miles, of which the government owns more than 53 square miles. This heavy interest being sufficient to give it a degree of control over the development of the field. The agreements are primarily between the government as a landlord and its permittees and lessees, but are supplemented by endorsement of the conservation program by private owners and their lessees. The agreements are the consummation of four months of negotiation at Los Angeles.

"This success in developing united action for the Kettleman Hills pools shows the possibilities in handling other oil pools discovered or yet to be discovered," it was declared by Secretary Wilbur, in commenting upon the agreement. "This arrangement in the Kettleman Hills oil field production problem indicates that even in the presence of a wild discovery well wasting as in enormous quantities, it is possible to settle many of the problems of controlling the future production of the pool by conferences and by mutual consent, rather than settling them over a mile under the ground.

"Past administration of the leasing act by demanding drilling forced production when over-production was causing public loss by waste and was damaging the oil industry, and delay in production which will permit time to master the situation in regard to proper handling of the oil question will be of advantage."

Twelve Sign Agreement To Curtail Operations

Los Angeles.—After going the rounds for more than two weeks, the agreement drawn up by the committee appointed to formulate a plan to curtail operations at Kettleman Hills has been signed by about 12 of the 15 who will be required to affix their signatures before the agreement becomes effective. Several minor changes were made to please the largest possible number of permittees and operators, but in the main the agreement remains as outlined at the last open meeting in Los Angeles. The government is well pleased with the progress made, but was forced to make several concessions in order that some definite plan could be adopted.

Kettleman Hills Well Due For Completion Soon

Coalinga, California.—Milham Exploration Company is drilling at 7082 feet in Beal 1, the deepest test in the Kettleman Hills field, and will be ready to complete the well within the next 100 feet. The formation is running to shale and oil sand. The company's Elliott 2, offset to the discovery well, is drilling in sandy shale at 6725 feet.

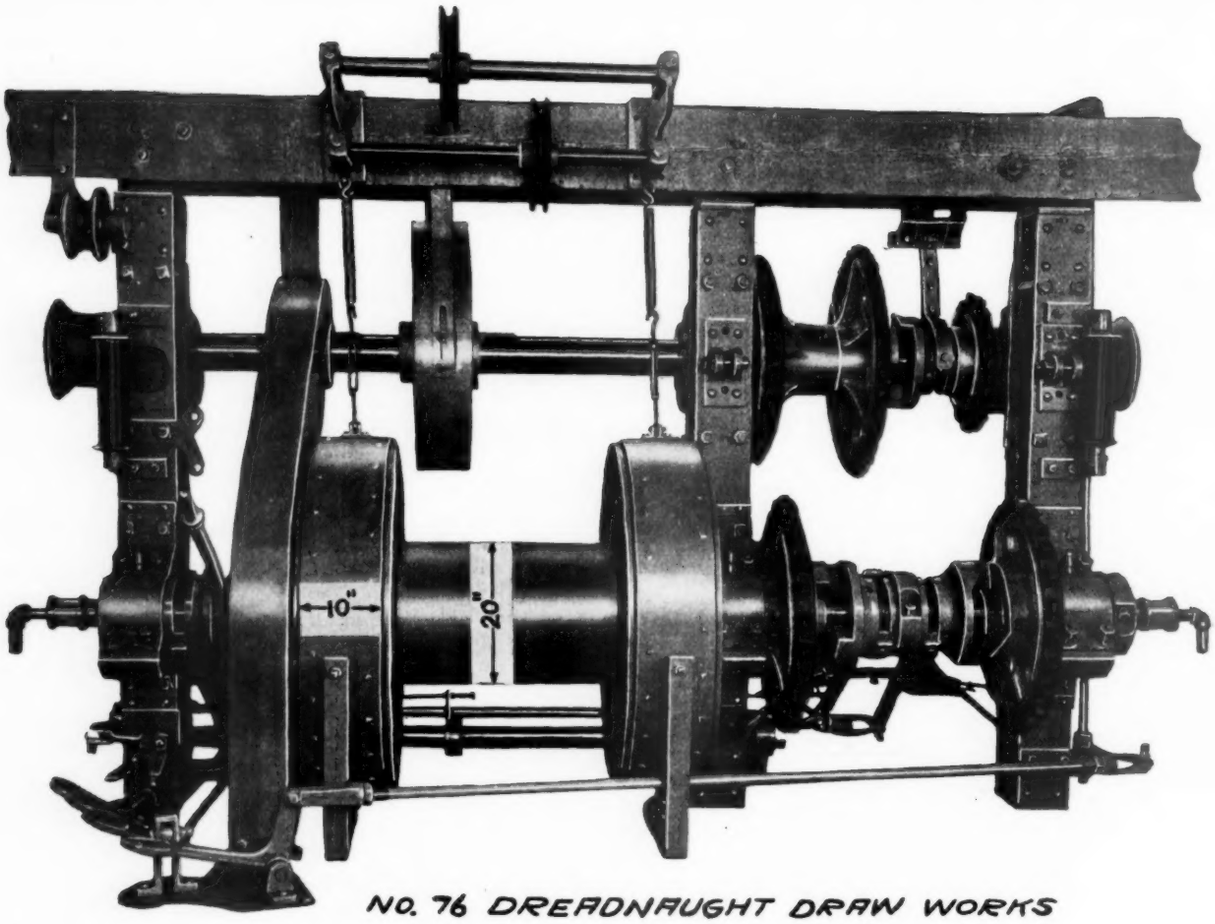
Standard Oil Company's No. 81, Section 11-22-17, is still on production after coming in with an initial flow of 480 barrels from 6673 feet. Production gradually increased to 975 barrels before the well sanded up and went off production. After cleaning out the well, production started off at a 700-barrel rate and showed no signs of declining.

General Petroleum Corporation is still worrying with Oschner 2, which promised for a time to be the field's second completion. Originally drilled to 6965 feet, a series of fishing jobs have delayed completion.

Other wells which, if not affected by the agreement to stop drilling, should be completed within the next six weeks are George F. Getty's Armstrong 1, Marland Oil Company's Elliott 12-8, Ohio Oil Company's Smith 1, Pacific Western Oil Co.'s 27, 34-21-17, Shell Oil Company's Armstrong 1, and Standard Oil Company's No. 8.

Maricopa Flats Is Scene Of Considerable Leasing

Taft, California. — Continued leasing activities in the Maricopa Flats district indicates that an increased drilling program is in the making, barring a further depression in the heavy oil market. Doyle Petroleum Company has made a new location on Section 8-11-23, a direct offset to Weir 1, which was recently completed as a 1500-barrel producer. Signal Oil and Gas Company has started drilling in Graham 2, Section 7-11-23, while Rio Grande Oil Company is drilling below 1000 feet in Havenstrite 1, Section 17-11-23, a new well.



NO. 76 DREADNAUGHT DRAW WORKS

VACATIONS

Some one has said a vacation is going away thinking you are tired and returning knowing you are tired. We believe everyone should get tired at least once a year. Then by all means take a vacation. It is so helpful and educational. A few days among the billboards and you become an art critic. A few days with hot dogs and hamburgers and you will be painfully reminded that you are neither a human ostrich or billy goat. Your vacation is supposed to give you a new lease on life and a few meals from your relatives; with the net results: tired in body, buoyant in spirits, and financially busted.

Then when you get back on the job, your hand on the throttle instead of your foot on the accelerator, you will experience a new thrill such as you enjoyed when the old bus was skidding along at 50 or more per hour under the magic touch of your foot. Dreadnaught Water-cooled Brake Flange Drawworks are built for speed and respond to the throttle's touch with never a vibration or flat tire. You do not fear skidding into the ditch for they are built and braced to stay put.

ASK THE MEN RUNNING THEM

CAN BE BOUGHT FROM YOUR DEALER OR AT ANY FRICK-REID STORE OR DIRECT FROM THE

BEAUMONT IRON WORKS CO.

BUILDERS OF DREADNAUGHTS

BEAUMONT, TEXAS, U. S. A.

Search For Zone Below Vaqueros at Elwood

Santa Barbara, California.—Barnsdall Oil Company will not attempt to produce Doty 5, a semi-edge test in the Elwood field, in the Vaqueros and will drill the well down to the Sespe in an effort to prove another zone. A string of 11¾-inch casing was cemented over the Vaqueros at 3796 feet, but it was deemed advisable to make a deep test of the well, which is now drilling at 4274 feet.

Development of tide lands and beach permits, directly offsetting Barnsdall Oil Company's and Rio Grande Oil Company's principal leases, is going forward, with four wells under way. Completion of these wells will throw a new light on the probable extent of the structure.

Los Angeles Basin Gas Consumption Increases

Los Angeles.—Consumption of natural gas in the Los Angeles basin has been greater during the past year than any previous year, due to the increased supply and the large number of industries now using gas, where they formerly used other fuels. Facilities for distributing dry gas have been increased, making it possible to supply almost any part of the district on short notice.

Kern County Test

Bakersfield, California. — Taft Well Drilling Company will not make a production test in Delfino 1, a wildcat which encountered heavy oil sand around 4000 feet, but will continue in search of a better sand. This well is located on Section 2-30-27, about one mile west of the Union Avenue district and two miles south of the Fruitvale field. Completion of a well at this point would complete an important link in the structure adjacent to Bakersfield. The well is now drilling at 4150 feet.

Carpenteria

Carpenteria, Calif. — Continental Oil Company is drilling in Kitty Bailard 1 below the point at which the heavy gas pressure was encountered in the original well, but will continue in search of an oil-bearing formation. At 4225 feet, the formation showed sand and streaks of shale.

Lawndale

Los Angeles. — Lawndale continues to be a difficult puzzle, with the major operators undecided on the next move. A study of the logs of wells drilled on the east sector fails to disclose a single theory that the field should be productive on a large scale in the 5800-6000-foot level. Two or three wells were drilled past 7000 feet without definite results. Many of the idle wells will be abandoned.

TULSA.—Reports reaching here are that the Empire Companies have blocked out in northern Mexico what is probably the world's largest oil structure yet found. It is understood that the structure is more than 100 miles long and 25 miles wide. A test is expected to be started very soon.

The Empire Gas & Fuel Company controls the structure and stands in a wonderful position for big rewards should production be found. It is reported that the company recently turned down $5,000,000 and a working interest for which it was to be carried from one of the Standard companies.

Operators Disappointed In Santa Barbara Mesa

Santa Barbara, Calif.—Failure of the Santa Barbara Mesa field to produce satisfactorily has had a slightly depressing effect upon developments over a wide area in Santa Barbara County. It required only a few weeks to prove that the new field could not be depended upon to produce uniformly, and as the area now stands, it must be classed as a district disappointment.

The rush to drill more than 40 wells was unwarranted from the start, when an analysis of the action of the discovery well was made. The first producer flowed at the rate of 1000 barrels, but water was present from the start. The cut increased to a high percentage before the well was shut in. The novelty of an oil field in such a conspicious and convenient location was a psychological factor in the rush for development.

Plan to Pool Kern Front Oil Production Fails

Bakersfield, California.—Little headway is being made on a plan to pool operations in the Kern Front field, with production, re-pressuring, drilling and storing methods to be supervised by engineers who would proceed along scientific lines. The adoption of such a plan would result in an entirely new undertaking and would prove an interesting experience. The plan has failed thus far because of the objections voiced by several interested parties.

Buttonwillow - Semitropic

Bakersfield, Calif. — Although somewhat overawed by the potential production of the Kettleman Hills field, the Buttonwillow - Semitropic district may play an important part in supplying natural gas to San Francisco and San Joaquin Valley cities. Pipe line connections are being made to include this area in the network of gathering lines which will carry the gas to points both north and south. Gas wells completed in the past have not been unusually large, but the gas is dry and requires little attention.

Continental Personnel in Texas is Reduced

Wichita Falls, Texas.—The consolidation of the Texas organizations of the Continental Oil Company of Texas and the Marland Production Company was completed here July 30 as a final chapter in the recent merger of the Continental Oil Company of Maine and the Marland Oil Company into the Continental Oil Company of Delaware. E. J. Nicklos, Ponca City, vice president in charge of production of the latter organization, visited Wichita Falls in connection with the merging of the two organizations in Texas, and announced that a big reduction in the personnel of the local office would become effective immediately, with Fort Worth being designated as division headquarters for all operations in Texas and New Mexico.

Geo. H. McIntyre, who has been in charge of Texas and New Mexico operations of the Marland Production Company with headquarters in the W. T. Waggoner Building, Fort Worth, and continuing as such since the change of the name to Continental Oil Company of Delaware, has been officially placed in charge of the Fort Worth division offices. Walter N. Alexander, vice president, in charge of the Wichita Falls district offices of the old Continental Oil Company of Texas, resigned July 30.

Under the new arrangement five district offices, at scattered points over Texas and New Mexico, will be under supervision of McIntyre, with a production superintendent in charge at each point. The following men have been selected for these offices: M. H. Shanahan, Wichita Falls; H. B. Hurley, Big Spring; Lloyd North, Houston; J. E. Warren, Borger, and Harold Vance, Jal, New Mexico.

H. A. Glenn will continue as chief clerk for Shanahan, having held the same position in the Wichita Falls office of the old Continental Oil Company of Texas. Stacey B. Dorn is to be manager of the land department of the Fort Worth division office, and D. D. Christner, chief geologist. John Kay will remain at Wichita Falls as district geologist. F. M. Jacobson is assistant to McIntyre and chief clerk in the Fort Worth division office.

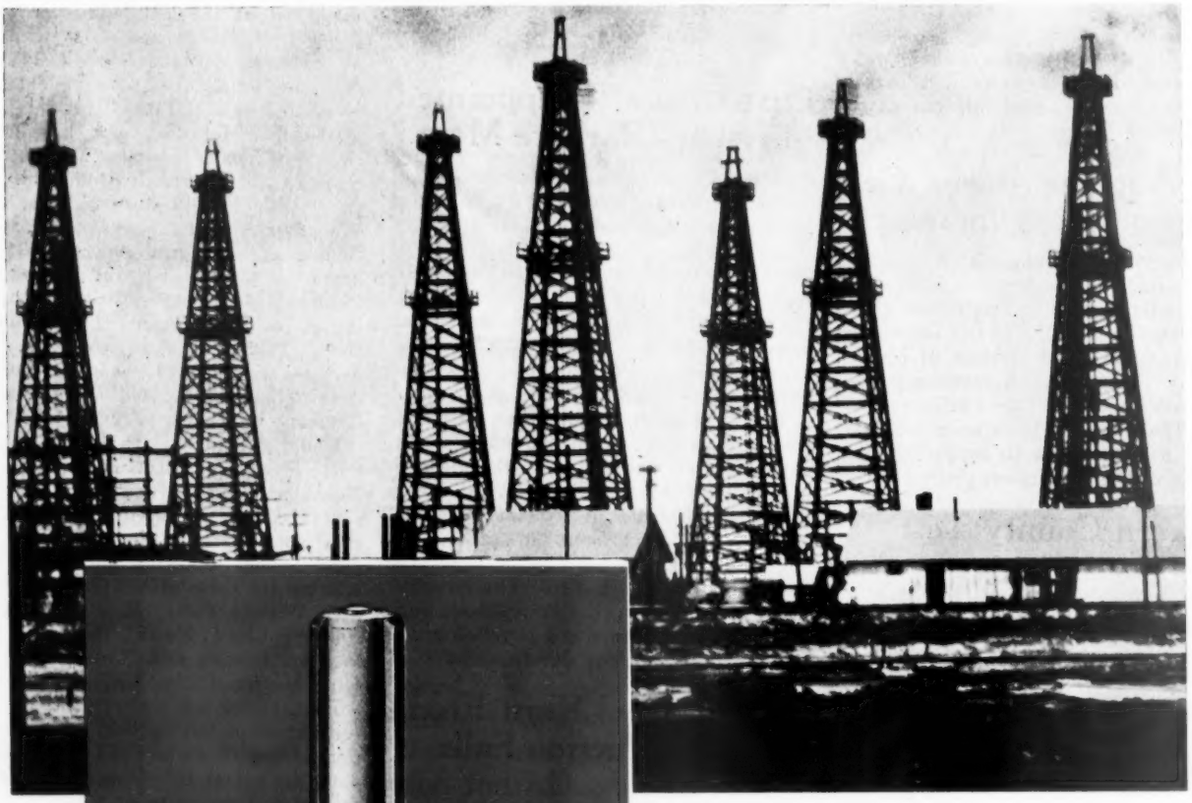
Summerland Well

Summerland, California.— Lincoln Drilling Company has again placed Williams 1 on production, having deepened the well to 1417 feet. Production is running about 300 barrels of 19 gravity oil.

Los Angeles Wildcats

Los Angeles. — New wildcats in the Los Angeles basin have brought the total active tests to the level of two months ago. Ohio Oil Company is rigging up at Recreation Gun Club 1, near Palisades Del Rey; L. P. Edwards is building a rig on Section 2-3-15, and G. S. Hanners is rigging up No. 1, Section 8-3-13, a test just south of Los Angeles.

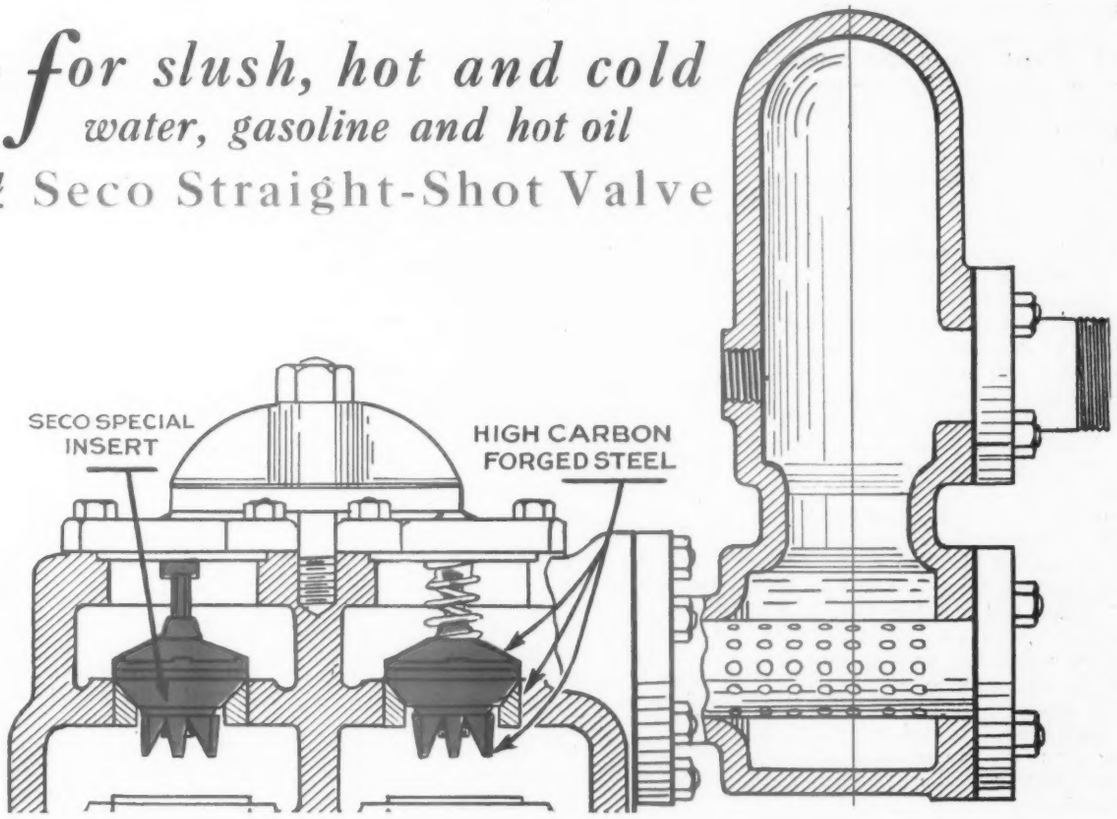
SAVE WITH SECO



SPECIAL INSERT

Inserts are of a special make and are used exclusively in Seco Valves. They have shown in numerous instances to give 100% more service than any insert ever used.

- - - *for slush, hot and cold water, gasoline and hot oil* use a Seco Straight-Shot Valve



This new drop-forged steel taper-seated valve is by far the most economical on the market according to all tests. It can be had for less money than the old style cast-steel, flat-seated type and will outlast it four or five times.

All parts, except the inserts, are made of high carbon, forged steel to prevent gritty fluids from eating into metal as it does with cast parts.

The Seco Straight Shot Valve is manufactured for all makes and sizes of pumps and is particularly adapted to the handling of slush, hot and cold water, gasoline and hot oils up to 300 degrees.

MISSION

Sales Company, Inc.,

Esperson Bldg.

HOUSTON

Early Problems of Marketing and Transportation

(Continued from page 37)

The First National Bank of Titusville might question this, for it advanced $30,000 toward the enterprise. Later, in the fall of 1866, the pipe line, property, machinery, etc., fell into the hands of the bank. Shortly afterward, Jonathan Watson came into possession of the line and disposed of portions of his interest to W. H. Abbott and Henry Harley. After many trials and troubles, trades, and reorganizations, The Pennsylvania Transportation Company was evolved, to become, later, one of the strongest and most substantial institutions of this section of the state.

Now there was another early pipe line conceived and executed before or at the same time of the Pit Hole-Miller Farm line. This one was laid from the old Noble well on the Farrel Farm to the termini of the Oil Creek and Allegheny Railroad at Shaffer. The line was known as The Western Transportation Company. As the oil historian says, its projectors, however, "reckoned without their host." They laid the line of 5½-inch water pipe, having a length of 2¼ miles. Following water-pipe practice they connected the line with leaded joints. Very little oil flowed through the line, because each leaded joint tended to spread it, leaking about the countryside. Thus the first attempt was a failure and was soon abandoned.

Soon after the completion of the Van Syckel line from Pit Hole to Millers farm, Henry Harley had a line in successful operation from Benninghoff Run to Shaffer Farm, on the Oil Creek Railroad. Following this, perhaps, came the Cherrytree line, one of the earliest constructed, running from Kane City to the Rynd Farm, with 15 miles of length, owned by John Wallace & Co. of Rouseville. The Rochester and Oleopolis Transportation Company of Oil City placed in operation between Oil City and Oleopolis, six miles of six-inch pipe.

There were a few gravity line. Most of them however, were operated by a small rotary pump connected with a steam engine. The cost of pipe used at that time is given as approximately 30 cents per foot, and the average cost, including pipes, tanks, pumps, boilers, houses, etc., was $1.500 per mile. A charge was made varying from 20 to 30 cents per barrel, according to the distance. Oil was usually pumped into the company's tanks, and from these, 42 gallons were delivered when sold, for each 43 gallons received. One gallon being deducted for wastage, evaporation, etc. Nothing was said about temperature correction, or "long" gauges in the pipe line company's tanks.

Somehow the success of the pipe line surprised people, "oil and otherwise" and many petroleum historians comment upon the fact that oil could be successfully pumped through pipes. Also some of the old timers in this industry can recall the skepticism and the prejudices of the early operators, oil men, teamsters and the like. Probably the teamsters "hoped it wouldn't work" and the others "wondered if it would."

In "Petrolia," by Andrew Cone and Walter R. Johns, some interesting discussion of the pipe line is found, as well as an edifying description of one petroleum pipe line installation, as follows:

"Where the gravitation is insufficient, powerful pumps are placed at the proper distances. No difficulty has yet been found in running the oil at all seasons. In the coldest weather, crude oil, like alcohol, does not freeze, at least we have never known of such an occurrence. Elevation or distance seem alike powerless to prevent its successful working—."

In describing the pipe line and its station as found in the early days in the oil region, the same writers, quoted above, chose a station on the New York, Philadelphia & Baltimore Petroleum Company's tract.—" The Pennsylvania Pipe and Transportation Company have a shipping dock at this point and their principal office. They also have another office at Pithole City (six miles away). The length of the pipe is seven and one-half miles, it is cast iron, and six inches in diameter. The head of the pipe is at the United States well. The oil is received from branch pipe running to different wells. It is first measured in the tanks and then let into the main pipe for transportation to the receiving tanks at Oleopolis. These tanks are made of boiler iron, holding some 15,000 barrels. They are located about a quarter of a mile from the river, up the creek. The oil is conveyed in a six-inch discharge pipe to the shipping platform on the bank of the river. At this platform is a cross-head pipe, of same calibre, 40 to 50 feet long. In this, at convenient distances for filling barrels, are inserted pieces of two-inch service pipe, to each of which is attached a stop-cock and rubber hose, with gooseneck, for filling barrels. Pipe can be attached to these for running oil into bulk boats. The company can transport 6,000 barrels of oil per day through the pipe if required. The pipe is laid six feet under ground and is not affected by frosts. It has proved a successful mode of transportation, but has been highly detrimental to the growth of Pithole, and annihilation to teamsters."

Two Completions Listed In Clay Creek Field

Houston.—Sun Oil Company, discoverer of the Clay Creek field, Washington County, and sole operator there, completed two tests there during the past week. Hunt 2 was finished a gas well at 1065 feet. Rock pressure was 500 pounds, and the capacity of the well was estimated at 2,000,000 feet daily. The other test that was completed was G. F. Grote 7, which came in for 300 barrels at 1265 feet.

Sun Oil Company has several other operations at Clay Creek. Queke 1 is rigging up; Hunt 1 is drilling shale at 2045 feet; Cockrell 1 is a location, and Landroff 1 is a derrick.

Old Rockdale Field Will Have Edwards Line Test

Rockdale, Texas.—The Texas Petroleum Development Company's No. 1 Milton Phillips deep test will be spudded before August 10. It is to be drilled 100 feet into the Edwards lime, unless commercial production is obtained at a shallower depth.

Location of No. 1 Milton Phillips deep test is 300 feet north of the south line, and 150 feet east of the west line of the 40-acre tract, in T. J. Chambers survey, which is part of the Texas Petroleum Development Company's 445 acres of shallow producing leases in the Rockdale-Minerva field. Location for the No. 1 Milton Phillips test was made sereval months ago by Dr. Erich F. Keuhnle of Houston. The well is in the west-central portion of the Rockdale-Minerva shallow field, and is surrounded by shallow producers.

Texas Petroleum Development Company is being assisted in financing this deep Edward lime test by local shallow-field operators and others who are interested as lease and royalty owners, or fee owners.

Almost from the date of the discovery well, (the Oklahoma-Bell's No. 1 Robert Isaacs) which came in for 15 barrels on February 17, 1921, it has been held by the shallow-field operators that deep oil would be found immediately under the area of the Rockdale-Minerva shallow field. No deep test has ever been made inside the shallow pool area.

More than 250,000 acres of leases are held in Milam County by large and small oil companies, and by individual investers. Of this acreage, there are some large blocks held by major companies, among them being the Magnolia Petroleum Company with about 16,000 acres; the Sun Oil Company with between 8000 and 10,000 acres; the Red Bank Oil Company of Tulsa, with more than 18,000 acres in the Branchville section, east of Rockdale, where considerable core-drilling has been done by that company.

The Texas Company of Houston holds more than one block of Milam County acreage, running into the thousands of acres. Texas Company has drilled several deep tests in the western part of the county.

The Rockdale-Minerva shallow pool has produced more than three million barrels of pipe line oil, and this has paid more than $4,000,000 in cash in the eight and one-half years of its production.

Texas Petroleum Development Company maintains an office in Cameron, in charge of L. Carrington, field superintendent. Management of the No. 1 Milton Phillips test will be under Ed Hewitt the promoter of the deep test. Groneman Brothers, contractors, will drill the hole.

Progress in Carbon Black Manufacture

(Continued from page 32)

is operating a smokeless carbon black plant at Pampa, Texas, but details of the operation of this plant are not available for publication. However, the process is said to be similar to that of the Thermatomic Carbon Company, which operates a plant at Monroe, Louisiana. The latter company makes use of the so-called matlock furnace. The gasses from this furnace are cooled down in a cooler, the black separated therefrom by suitable filters and the separated black thereafter pneumatically conveyed to storage.

A discussion of the progress that has been made in the manufacture of carbon black would not be complete without some comment upon the methods now used for packing and shipping this product.

As it comes from the burner building, carbon black is very bulky and without proper handling only three to four pounds could be put up in the standard bag. However, through special treatment and proper methods of packing, much of the air is driven out so that the standard package with which users are familiar contains 12½ pounds net, and measures 21 inches long by 11 inches wide by eight inches thick.

Carbon black is also packed and shipped in medium compressed form. For this manner of packing, the standard bag is subjected to very heavy mechanical pressure which, on account of the nature of the black, must be applied slowly so as to allow time for the air to be driven out from the tied end of the bag without injuring the container. This presses the bag down in one dimension, until the thickness is reduced to only five inches. In this medium compressed form the black is compact, and yet breaks up readily under any conditions of milling. Medium compressed black has its volume reduced about 40 per cent. from that of the regular uncompressed black by having the air driven out from between the particles.

In some cases it was found that the medium compressed black would not entirely eliminate the dust and dirt, owing to the rapidity with which the material had to be handled under certain conditions. Double compression was therefore worked out, in which the medium compressed bags are handled in a separate press, and extremely heavy pressure applied in another dimension so as to reduce the width of the compressed bag. This process, of course, necessitates much higher working pressures; and, as the black is already partially compressed, much more time is taken for safe handling of both the material and the package. In this heavy compressed form the breadth of a bag is reduced to six inches, so that the resulting package is of the same standard length, viz., 21 inches by only six inches wide by six inches thick. This gives an extremely compact bag of black, in some cases being then known as blocks or briquettes. When put on the mill, although readily friable when properly handled, the black tends to hold together in small pieces, thereby practically eliminating the tendency toward being blown into the air as dust.

Carbon black is shipped in carload lots. The general method of carload deliveries is to take the original 12½-pound bags, either in compressed or uncompressed form, and in order to insure safe delivery an over-slip bag is used, thereby giving a double container for each package. If these bags are made of a heavy rope paper, they are safely and easily handled and simplify storage problems, as the weight and size make it possible to pile them in tiers to a considerable height. Except for certain special points, a regular carload consists of 1600 bags making 20,000 pounds net to the car.

For less than carload shipments, or for export business, carbon black is put up in a standard case. These cases are of wood, and made to withstand handling, and are of uniform size, containing 12 bags of uncompressed black, 18 bags of medium compressed black, or 25 bags of heavy compressed black. The medium weights are respectively, 150 pounds net, 225 pounds net and 312½ pounds net.

Pierce Junction Field Gets 2000-Barrel Well

Houston.—A particularly good well was completed at Pierce Junction last week when Gulf Production Company finished H. C. Cain 8 for 2200 barrels initial production. This was the only well completed in the field during the week.

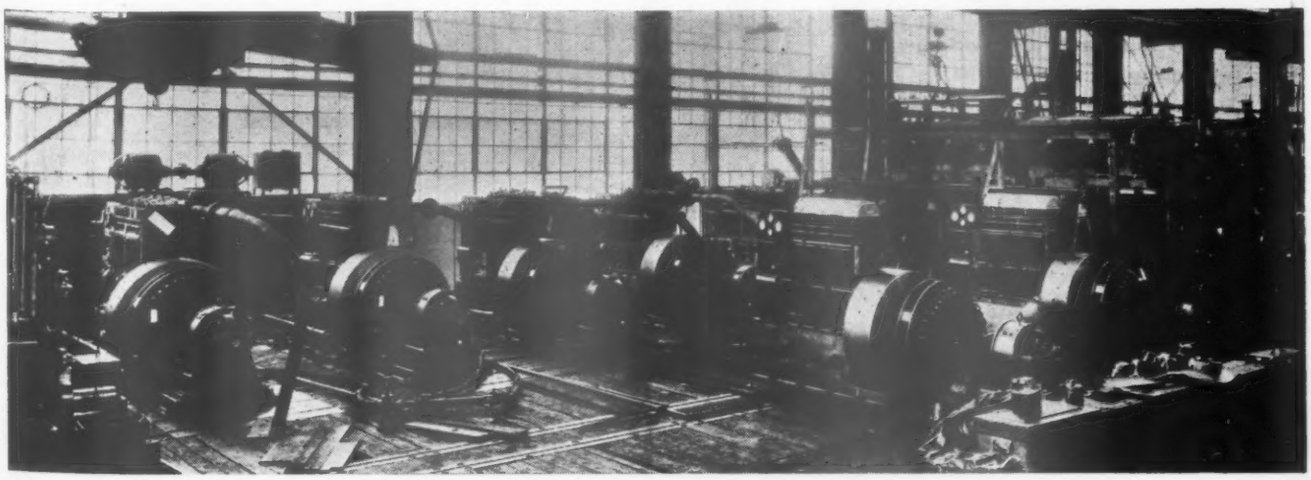
Pierce Junction is the second largest producing field in the Gulf Coast at present. During the past week the average daily production was 19,700 barrels.

Bessemer Diesel Units on Texas-Empire Line

The Texas Empire Pipe Line Company, organized jointly by the Texas Pipe Line Company of Oklahoma and the Empire Pipe Line Company to build and operate an oil carrier from Cushing, Oklahoma, to the Chicago refining territory, has recently ordered eight Bessemer Diesel generating sets for auxiliary service in their booster stations along this line. The accompanying illustration shows seven of these eight sets undergoing their final block test at the Bessemer factory.

The engines are of the completely enclosed type, stream line in design, and are entirely self-contained. Engine and generator are mounted in a single compact unit which takes up but little floor space. The engines are of 60 horsepower at 400 r.p.m. The generators are 43.8 Kva., 80 per cent. P.F., alternating current, 440 volt, three phase, 60 cycle, with direct connected exciters.

Location of the sets are to be at Cushing and Nowata, Oklahoma; Lowry City, Center and Bunceton, Missouri; and Heyworth, Virginia and Ballou, Illinois. They are of the latest Bessemer design, and are known as Type EP-3 generating sets.



Seven of the eight Bessemer Diesel generating sets for the Texas Empire Pipe Line Company undergoing final block tests at factory

What is it worth to you of EVERY wire-line

CORROSION RESISTING PAINTS
PORTABLE STEEL BUILDINGS
TREATED OIL FIELD TANKS

The "D-H" Wire Line Insuline No. 269 *Saves*

AFTER severe tests under practically every drilling condition known to the fraternity, we offer "The Sawtelle Wire-Line Lubricator" and "Insuline No. 269" as a most thorough and effective means of lubricating wire-lines.

Lines lubricated in this manner are absolutely protected clear to the core. Running in sulphur, alkaline or salt water—running in sulphur crude oil—or spooling indefinitely — will not cause strands to crystallize and break when they have this protection.

This lubricant also eliminates cut casing in crooked holes, by furnishing the line with a protective cushion. It is applied while running lines in or out of the hole.

Photo of tank of "Insuline No. 269," with pump and "D-H Lubricator" assembled for operation.

DRANE-HUMPHRE

San Angelo **Texas**

to MULTIPLY the life in your service?

Lubricator and Lines and Casing

"D-H" Wire Line Lubricator, closed.

—You KNOW the terrific wear and tear on Wire Lines!

—You KNOW the thousands of dollars every job costs you on this item ALONE!

"D-H" Wire Line Lubricator, open.

INSULINE No. 269 has wonderful heat-resistance and penetrating qualities. At a pressure of 2½ lbs. it thoroughly saturates the core, and coats the strands of a wire line, in four-fifths of the time required to do the same work with the finest petroleum oils.

In addition, a film is formed over the entire wire line which prevents the evaporation of lighter penetrating oils; and none of the petroleum products nor water will have the slightest tendency to dissolve this film or wash the ingredients out of the line. Therefore, this is practically a permanent protection.

Complete Equipment for Applying (as shown in photo on opposite page) and 55 gallons of Insuline No. 269 (enough to treat 30,000 feet of line) only

$250.00

F. O. B. San Angelo, or Fort Worth

Y COMPANY, INC.

Petroleum Building, Fort Worth

Deeper Drilling *Revises Importance of* Allen Field *in Oklahoma*

Recent discovery of production in the Wilcox sand are not of themselves important but give area added promise

By WARREN BAKER
Staff Representative

ALLEN field of Pontotoc and Seminole Counties stands out as an example of revived interest due to deeper drilling among the older pools of Oklahoma. Discovered in 1913 by the K. C. Oil Company, the pool was developed in a small way for the production found at 700 and 800 feet. The history of the pool shows several lapses and revival of development, with the present and largest activity starting late in 1927, when production was found in the Gilcrease and Cromwell horizons. Since that time deeper drilling has shown the Wilcox sand carrying oil. The number of producing horizons greatly brightens the possibilities of any test in the region.

Nineteen twenty-nine is certain to stand out as the field's greatest year so far. During the first six months the pool has produced more oil than it did during 1928, which has been the banner period. The first six months of 1929 the pool recovered 4,718,650 barrels of oil, compared with 4,204,600 barrels produced during all of 1928. The daily average production of the field at this time is 25,000 barrels.

Up until June 1, 1929, Allen field had produced a total of 11,038,885 barrels of oil, of which three-fourths has come in the last 18 months. A total of 211 wells have been completed, which gives the field an average recovery of 52,317 barrels per well, and 5231 barrels per acre. This is really a fine figure considering the age of the field and that three-fourths of this amount has come in the last year and a half, and that no record was kept of its earlier production recovery.

Mid-Continent Petroleum Corporation's Fleet lease in Section 7-5n-8e, leads in matter of production with a recovery of 1,603,573 barrels from 14 wells. This is the only lease that has recovered more than a million barrels of oil, but others are certain to top that figure after a longer period of production. Second in the production list is the Louisiana Oil Refining Corporation's Perry lease in Section 20-5n-8e, which has produced 762,326 barrels from 13 wells. Anderson-Pritchard's Cully lease in Section 18-5-n-8e, has eight producing wells that have yielded 580,918 barrels. The Texas Company's Lucy farm, in Section 18-5n-8e, has produced 576,159 barrels. It has nine producers. Several leases have produced more than 400,000 barrels. Wesheimer et al's Wade in Section 19-5n-8e, has made 495,622 barrels. Sunray Oil Company has two tracts that have passed the 400,000-barrel mark. Its Nitchey farm, in Section 18-5n-8e, has recovered 448,793 barrels and its Cully in the same section 442,819 barrels.

The area boasts of 30 drilling tests and several new locations. Most of these are along the west side of the field, which has not been determined and which is thought to have the greatest possibility for Wilcox sand production.

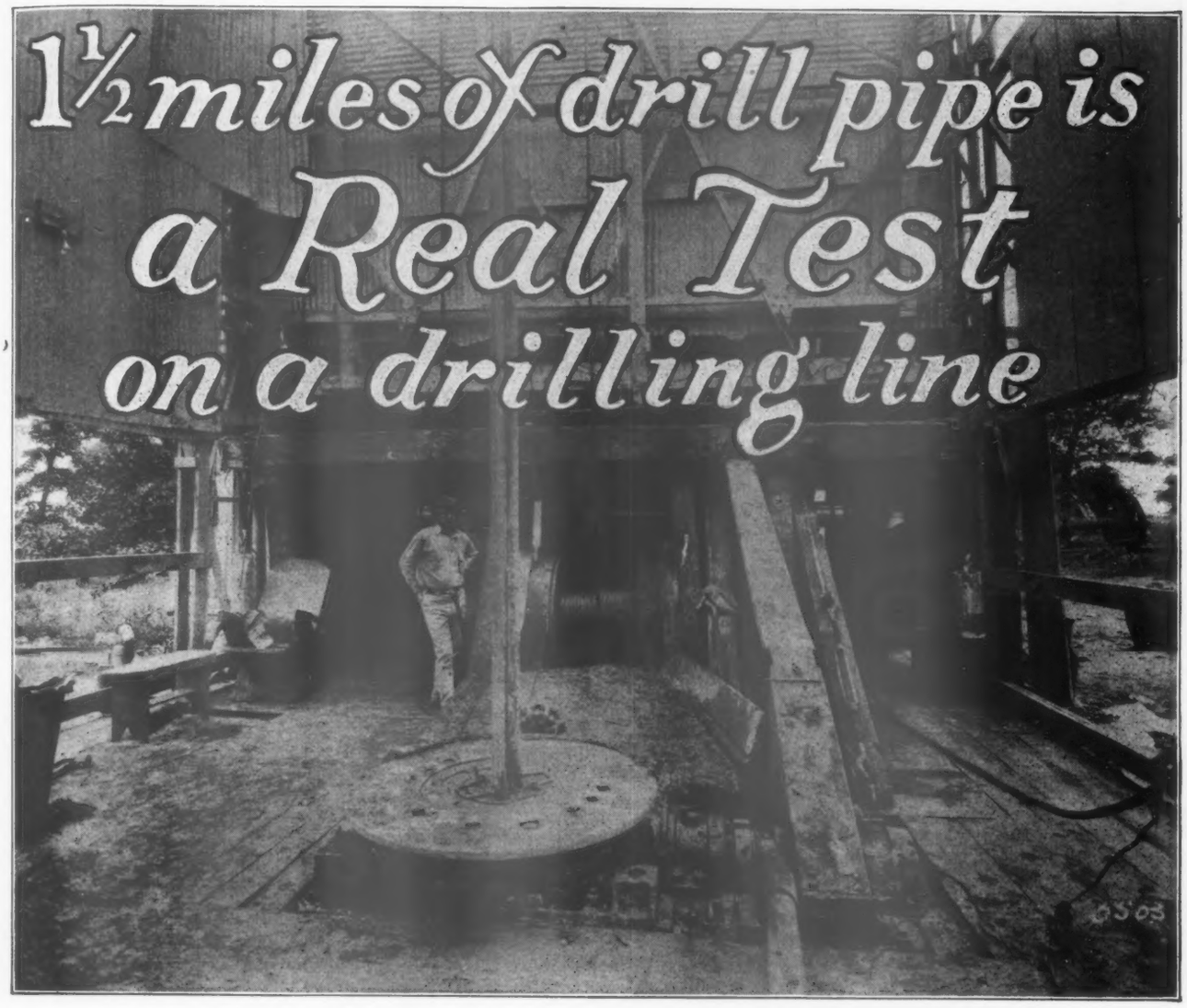
Wilcox Sand

More recently interest in the field has been centered around the possibility of Wilcox sand production. Several Wilcox sand producers have been completed, and despite the fact that none of these as yet have proven a large producing area operators are still optimistic over the future prospects for this horizon. The remainder of 1929 will see the Wilcox sand tested by a number of present drilling wells, after which much more of the prospects for Wilcox sand oil will be known.

The finding of Wilcox sand production at Allen was important. The pool is located near the Arbuckle Mountain uplift and geologists were of the opinion that the Wilcox would not carry oil. The first Wilcox sand producer was the Sinclair Oil & Gas Company's Amos 2-C, SEc NE NW Section 7-5n-8e. This well made 35 barrels per hour from the Wilcox sand at 4156-58

PRODUCTION OF THE ALLEN POOL BY LEASES AS OF JUNE 1, 1929

Company	Lease	Section	No. Wells	Total Recovery
Anderson-Pritchard Oil Corporation	Cully	18-5-8	8	580,918
Barbara Oil Company	Mount	36-5-7	1	9,783
Burke-Greis Oil Company	Nitchey	18-5n-8e	3	279,107
Dixie Oil Company	Payton	1-4-7	1	7,854
Gilcrease Oil Company	Punka	17-5-8	2	296,187
	E. Reed	18-5-8	2	91,114
	W. Reed	18-5-8	1	7,800
Gypsy Oil Company	Peter	18-5-8	9	288,310
Homaokla Oil Company	Adams	19-5-8	7	265,842
	M. McCall	17-5-8	11	352,652
	Milner et al	17-5-8	4	84,945
	J. B. Milner	16-5-8	2	41,705
	Ritchie	1-4-7	2	39,748
	Wheeler	16-5-8	1	20,678
Indian Territory Illuminating Oil Company	Bingham	8-5-8	3	101,714
	Osborn	18-5-8	3	219,693
Louisiana Oil Refining Corporation	Harjo	17-5-8	6	286,759
	McElroy	17-5-8	5	245,259
	Perry	20-5-8	13	762,326
	Punluste	8-5-8	4	375,485
	Reed	18-5-8	4	373,935
	Reed "A"	18-5-8	1	23,703
	Statler	7-5-8	2	35,031
	Warfle	20-5-8	3	240,824
Magnolia Petroleum Company	Reed	17-5-8	4	120,035
	Reed "A"	13-5-7	1	1,255
Mid-Continent Oil & Gas Company	Fleet	7-5-8	14	1,603,573
	Harjo	14-5-7	1	448
Prairie Oil & Gas Company	Harris	8-5-8	1	4,602
	Reed	12-5-7	1	532
	Simena	11-5-7	1	5,130
	Wyecka	24-5-7	1	11,442
Ramsey Petroleum Corporation	Butler	17-5-8	1	7,242
	M. Butler	20-5-8	1	33,910
	Kerr	1-4-7	1	1,421
	McElroy	17-5-8	1	24,103
	Milner	17-5-8	7	135,954
	Parker	17-5-8	2	96,913
	Harjo	20-5-8	2	34,182
	Warfle	20-5-8	1	24,964
	Smith	8-5-8	1	10,910
	Webb	20-5-8	5	364,997
	Whitney	19-5-8	5	298,034
C. B. Shaffer	Chapman	36-5-7	1	16,645
	Yoakum	16-5-8	6	290,400
Sinclair Oil & Gas Company	Amos "B"	7-5-8	1	83,094
	Jefferson	23-5-7	1	9,520
	Narcoche "A"	18-5-8	1	1,780
	Narcoche "B"	18-5-8	5	217,359
	Peter	18-5-8	2	5,544
Sunray Oil Company	Amos	7-5-8	1	56,205
	Cully	18-5-8	8	442,819
	Nitchey	18-5-8	4	448,793
	S. Nichey	19-5-8	3	70,227
	Sarney	19-5-8	2	89,069
The Texas Company	Hyde	8-5-8	5	286,113
	Lucy	18-5-8	9	576,159
Westheimer et al	Milner	8-5-8	3	133,927
	Wade	19-5-8	9	493,622
Westheimer & Daube	Patterson	29-5-8	1	6,592
	TOTAL		211	11,038,885



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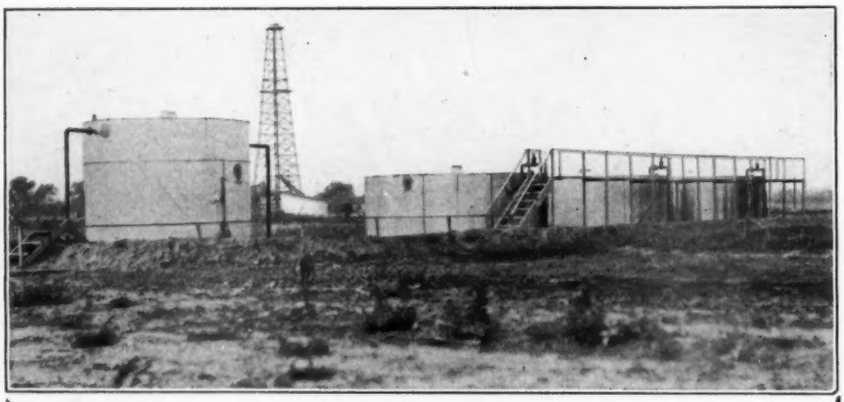

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feet. It was drilled in during September, 1928.

Later Wilcox sand production was found in Sections 23 and 24-5n-7e, on west edge of the field. Although the Wilcox sand in this area at times showed indications of becoming important, for the most part the producers failed to hold up to their initial recovery. A number of failures were also found in the vicinity of these Wilcox producers.

The finding of the fine prolific production from the Wilcox sand in the Sasakwa field, just north of Allen, has greatly encouraged operators to continue their search for a Wilcox field in the Allen region.

More than enough natural gas is produced to operate the refineries, gasoline plants and other industrial plants of the territory. The Forrest E. Gilmore Company has a gasoline plant seven miles west of Allen, and the White Oak Refining Company has a 9500-barrel capacity refinery on the edge of Allen. Homaokla Oil Company's refinery of 2500-barrel capacity is also on the edge of the town. The oil produced at Allen is in demand and several of the larger pipe line companies have lines into the field.

Mississippi Wildcat Test Attracts Oil Men

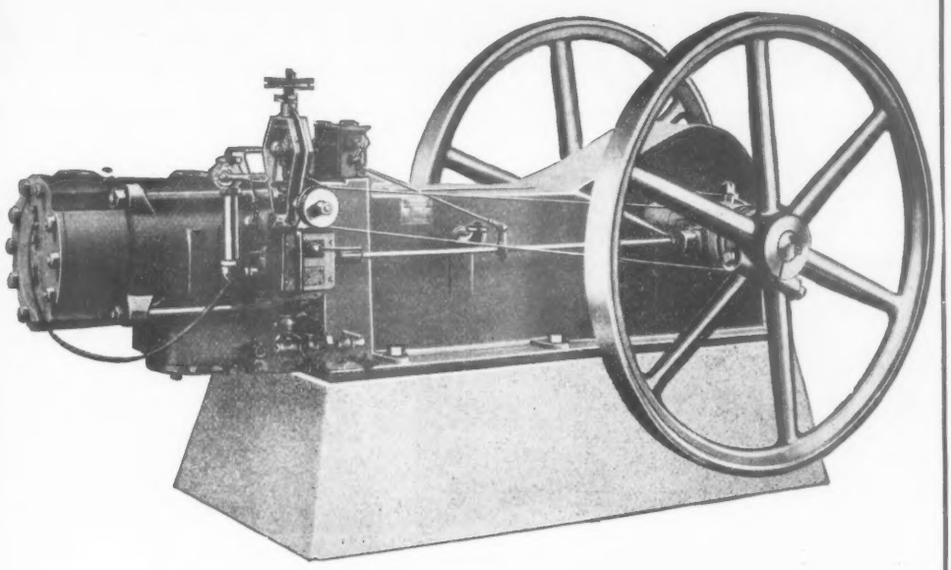
Meridian, Mississippi—Comparison of the log and cuttings of the Lackey well now drilling in Section 2-7-16, 10 miles northeast of Meridian, with those of the Topton test, located two miles to the southeast of the Lackey, shows that this second well is running 52 feet higher structurally, according to the Gulf Refining Company. This fact is causing an influx of oil men into Meridian.

Coming over from Shreveport to check up on the developments is Roy T. Hazzard, assistant to C. R. Miner of the Gulf Refining Company. Also here were E. V. Whitwell, geologist of the Carter Oil Company; C. C. Clark, district geologist and Frank G. Hulse, land man and scout of Shell Petroleum Corporation, and J. R. Whalen, Mississippi representative of the Ohio Oil Company.

July 27th the Lackey well was drilling Selma chalk at 1500 feet, making excellent progress. As the Lackey well goes through the chalk which it entered at 1192 feet, interest is growing and trade beginning.

Dixie Oil Company Is to Move Offices to Tulsa

Shreveport.—It is learned from semi-official sources that the Dixie Oil Company, a subsidiary of the Standard Oil Company of Indiana, at an early date will move its headquarters from Shreveport to Tulsa. Dixie Oil Company has extensive interests in Pine Island and other fields in this territory.



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It's the new and improved Franklin Gas Engine, identified by Type OG. Try it, keep a comparative record and you'll come back for more just as many other operators have done.

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Convertible at but slight expense into Type OF Oil Fuel engine.

There are enough reasons given in the adjoining column for you to want a Franklin for every well you own. And don't forget that inter-changeability feature.

Prices

Type OG 40 HP Gas Engine
$1300.00 F. O. B. Franklin

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Some of the Franklin OG Good Points

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Low Fuel consumption
100% inter-changeability
Simplicity

Piston rod is fitted with metallic packing which never needs adjusting or replacing.

Every spring exposed.

Complete simplicity with practically no adjustment.

In case of belt breakage engine automatically stops

Fuel pump driven by eccentric running in oil bath

Bearings are removable and reversible

Only standard threads used. No special wrenches required

Cylinder has 3 point, forced feed lubrication

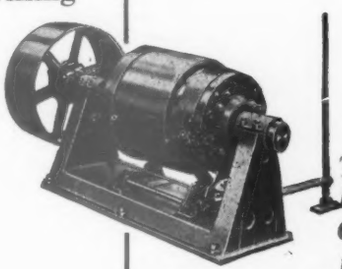
Balance of lubrication is splash feed

Pistons are air cooled

All nuts subject to vibration are castillated and fastened with cotter pins

Most economical to operate in fuel, lubricant, water and repairs

Easy to start.



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Construction and design prevent Reverse Clutch Troubles.
PRICE—$1200.00 F. O. B. Franklin, Penna.

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COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This week	Completions Last week	Producers This week	Producers Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	2	1	1	..	..	..	1	1	20	...
California	12	23	10	18	..	..	2	5	6,700	22,125
Illinois	25	10	21	9	..	..	4	1	1,694	925
Indiana	1	6	..	3	1	..	..	3	...	41
Kansas	32	26	20	15	..	1	12	10	7,294	4,780
Kentucky	31	38	18	22	4	1	9	15	436	1,352
Louisiana	26	5	10	4	6	..	10	1	1,614	2,275
Michigan	17	8	16	7	..	..	1	1	7,210	2,650
New York	..	15	..	15	..	..	..	..	...	46
New Mexico	..	2	..	1	..	..	..	1	...	780
Ohio	66	46	29	22	22	15	15	9	584	118
Oklahoma	81	64	38	30	11	9	32	25	11,668	16,287
Pennsylvania	45	109	39	101	5	6	1	2	146	263
Texas	209	164	121	102	10	5	78	57	53,522	43,494
West Virginia	21	30	5	9	16	15	..	6	42	121
Total	568	547	328	358	75	52	165	137	90,930	95,257
Increase this year	21	..	..	..	23	..	28	..	...	...
Decrease this year	..	..	30	..	..	..	..	..	4,327	...

CALIFORNIA

KERN FRONT—

Company, Well and Location	Initial Production Bbls.	Depth
Richfield Oil Co., No. 26, 22-28-27	200	2240
LONG BEACH—		
Delaney Pet. Corp., Anderson 1	400	5825
Graham and Loftus, Dodge 2	2600	7575
A. T. Jergins, No. 6	500	4680
RICHFIELD—		
Continental Oil Co., Richfield Comm. 3	400	4297
RINCON—		
Chanslor-Canfield Midway Oil Co., Hobson B-9	200	4555
SANTA FE SPRINGS—		
General Pet. Corp., S. F. 234	700	6345
SEAL BEACH—		
Marland Oil Co., Bixby 10	1500	5600
Bixby 20	150	5415
SOUTH MOUNTAIN—		
The Texas Co., Harvey 25	50	3223

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Fee 6	12	....
Lee-Hallock 107	pressure	....
Cross 07	pressure	....
Bradford Producing Co., Hifler 020, 022	pressure	....
Mitchell M C-17	pressure	....
Fee, (three wells)	pressure	....
Hazlewood Oil Co., Lot 27, tr 147	2	....
Lot 3, tr 51	2	....
Scraxton & Son, Scraxton 2	7	....
Kriz & Co., Franchit 1	3	....
L. S. Letson, Letson 1	3	....
Jane Van Tine, Van Tine 13	4	....
Jane Jane Estate, Quintruple 17	2	....
Olean Pet. Co., Fee 7	4	....
Phoenix Oil Co., Kennedy-Clark 19	8	....
F. M. Boocks, Boocks 13	2	....
Mix Creek Oil Co., Mix Creek 64	2	....
Mix Creek 65	pressure	....
L. M. Lilly, Baker 1	3	....
S. H. Elder & Co., Elder 22	12	....
Hope Oil Co., Hope 6	4	....
J. Roggenbaum, Roggenbaum 3	3	....
W. B. Miller, Borden 1	3	....
J. Wormer, Gilfillan 14	4	....
Kahle Oil Co., Norton 1	3	....
E. Daly, Daly 7	2	....
L. G. Dana, Dana 8	4	....
Schopperle & Co., Duke 6	3	....
Grow Farm Oil Co., Grow 2	pressure	....
W. T. Piper, Borden 12	2	....
Healey Pet. Co., Healy 16	2	....
T. P. Thompson, Gilpin 10	2	....
G. L. Rhodes & Co., Emerson 1	2	....
Robert Jones, Franchot 19	2	....
G. W. Crooks & Co., Franchot 8	4	....
N. V. V. Franchot, Campbell 20	8	....
Daly Oil Co., Bingham 412, tr 8	3	....
D. T. Andrus & Co., Andrus 7	2	....
George Est., George 1	2	....
WESTMORELAND COUNTY—		
T. W. Phillips Oil & Gas Co., Barnett 2	¶2	....
WASHINGTON COUNTY—		
Duncan & Coulter, Potts 1	5	....
Perry Bishop, Tanneyhill 1	10	....
GREENE COUNTY—		
Equitable Gas Co., Ensminger 2	¶1¼	....
Dun-Mar O&G Co., Kerns 1	¶1	....
Frank Rose & Co., Saunders 1	¶1	....
Carnegie Natural Gas Co., Scott 4	¶1½	....
VENANGO COUNTY—		
R. F. Whitling, Huff 19	2	....
C. L. Irwin, McKee 5	2	....
Eakin & Co., Cunningham 35	2	....
South Penn Oil Co., Melford 32	2	....
Smith & Co., Foster 21	2	....
Witherup & Co., McElpatrick 25	*	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
F. F. McIntosh, Stump 1	¶1½	....
Riddle 1	¶¼	....
Geo. Hamilton & Co., Ball 1	¶½	....
W. H. Bickel, Clark 1	¶¼	....
Shook 1	¶1¾	....
McIntosh & Miller, Miles 1	¶1	....
United Fuel Gas Co., Proudfoot 3967	¶1	....
ROANE COUNTY—		
South Penn Oil Co., Stockley 93	20	....
United Fuel Gas Co., Nixon 2587	¶¼	....
Grow & Decker, Kendall 1	¶1	....
WETZEL COUNTY—		
H. M. & C. Oil Co., Newman 1	3	....
Carnegie Nat. Gas Co., Edgell 10	2	....
Chesbrough Mfg. Co., Peterson 7	2	....
LINCOLN COUNTY—		
Russell Gas Co., Linville 1	¶½	....
Earl Cameron, Stone 3	¶½	....
CABELL COUNTY—		
West Va. Gas Corp., Schaub 1	¶1	....
Hamilton Gas Co., Hutchinson 1	¶1	....
JACKSON COUNTY—		
Heck Oil Co., Hartley 3	15	....
DODDRIDGE COUNTY—		
Nay & Maxwell, Shine 1	¶¼	....
MARION COUNTY—		
Owens Bottle Machine Co., Fox 1	¶1¼	....
PUTNAM COUNTY—		
J. B. Reeshman, McAliister 3	¶2	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
OHIO COUNTY—		
H. C. Smith Oil Co., Kelley 1	*	....
Kelley 2	15	....
Kelley 3	¶½	....
J. C. Ellis & Co., Keith 7	25	....
Keith 8	25	....
J. C. Ellis, Greer 3	35	....
Standard Oil of Kentucky, Patton 1	*	....
Cumberland Pet. Co., Dodson 1	*	....
Rex-Pyramid Oil Co., Morgan 2	250	....
Ray Bigler & Co., Hendrix 8	15	....
C. Claypool & Co., Ralph 12	50	477
DAVIESS COUNTY—		
Goldburg & Co., Purcell 5	35	....
Purcell 6	60	....
Mecca Oil Co., Johnson 1	50	....
Miller & Damron, Clayton 1	25	....
Petroleum Explo. Co., Russell 1	*	....
Robbins, Wright & Clay, Ambrose 1	30	....
Hupp, Duff & Co., Connor Heirs 1	*	660
Ira Huff & Co., Litsey 1	*	....
FLOYD COUNTY—		
Yolando Oil Co., Collins 1	¶1½	....
United Carbon Co., Osborne 1	¶1	....
Allen 1	¶1½	....
HENDERSON COUNTY—		
Unknown Parties, Griffin 1	20	....
LEE COUNTY—		
J. D. Welch, Burgin 3	*	....
WAYNE COUNTY—		
W. O. Southern, Jr., Jones 9	40	....
Porter Abbott & Co., Coffey-Oatts 7	5	....
WOLFE COUNTY—		
Garrison Bros. & Co., Roberts 6	*	....
WARREN COUNTY—		
Penn Homa Oil Co., Hobson Heirs 20	4	918
W. C. Eyl, Duncan 5	1	1093
BARREN COUNTY—		
J. W. Porter, Mayfield 1	*	....
Consolidated Oil Co., Mansfield 3	1	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
MONROE COUNTY—		
Chas. Hogue & Co., Butt 1	¶¼	1947
Wittmer Properties Trustee, Boetticher	¶¼-8	2474
Penn O&G Co., Eichorn 1	¶½	1588
Weber Bros., Young 3	*	1500
Ben E. Howell & Co., Howell 1	*	1630
Payne & Swarthout, Dean 5	*	1533
MORGAN COUNTY—		
Penn O&G Co., Benjamine 12	¶¼	1685
Poole O&G Co., Bending 2	15	2915
Woodyard Bros. & Co., Hollowell 3	1	323
Choquill & Co., Crew 5	¶¼	1595
James Moore & Co., Foraker 19	*	331
WASHINGTON COUNTY—		
Penn Grit Oil Co., Hughey & Dennis 1	¶1	855
Harry Biniger, Schmelzenbach 5	2	2002
Shay McMullen, Creighton 4	3	1420
James Rinard Co., Knock 2	*	1110
Ohio Fuel Gas Co., Perry 1	*	1285
JEFFERSON COUNTY—		
Harry E. Tope & Co., Edmiston 7	1	....
James Davis, Moreland 1	1	....
George Clurt & Co., Cooper 3	2	....
NOBLE COUNTY—		
Permain O&G Co., Dillahay-Mallett 4	¶¼	1675
McKee Bros., McKee 2	*	1292

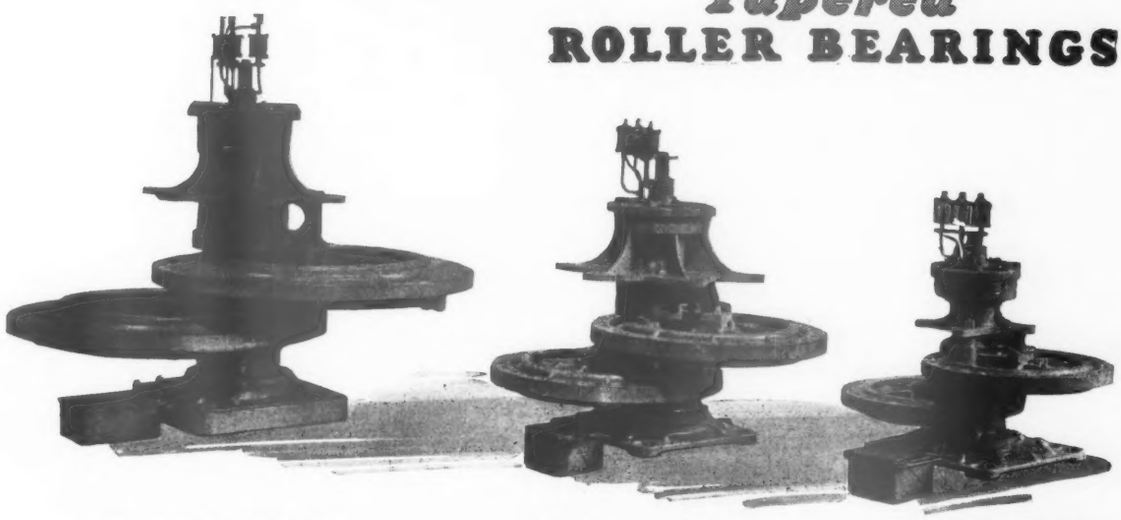
CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
LICKING COUNTY—		
Murphy Pet. Co., Little 2	50	....
Ohio Fuel Gas Co., Georgette 1	6	729
North Fork Oil Co., Williams 6	2	580
Lyttle & Armstrong, Motherspaw 12	3	761
Emerald Pet. Co., J. W. Little 5	60	2884
ASHLAND COUNTY—		
Coast & Co., Barnhart 6	¶¼	698
Mohican O&G Co., Cherown 4	15	558
Welty & Co., Welty 1	*	600
Robinson & Co., Sellers 2	*	640
Smith 2	4	613
GUERNSEY COUNTY—		
East Ohio Gas Co., Wilson 2	55	3509
Cambridge Gas Co., Turner 1	¶¼	844
Ohio Fuel Gas Co., Nickle 1	¶½	1394
Sheeley 1	*	3319
MEDINA COUNTY—		
Ohio Fuel Gas Co., Bensinger 1	*	....
Winkler 2	¶¼	....
Oko O&G Co., Brinker 24	25	....
MEIGS COUNTY—		
Tyree & Co., Carnahan 11	10	640
Ohio Fuel Gas Co., Whaley 1	¶½	843
H. W. Taggert & Co., Rowley 4	¶¼	805
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek Coal 1307	85	3554
Berlin & Co., Nelsonville Coal Co. 1	¶1	933
VINTON COUNTY—		
Southern Oil Co., John C. Bone 3	8	2516
I. C. Robinson & Co., Harrols 2	¶1¼	2827

(Continued on page 80)

3 Reid Powers

Equipped with TIMKEN *Tapered* ROLLER BEARINGS

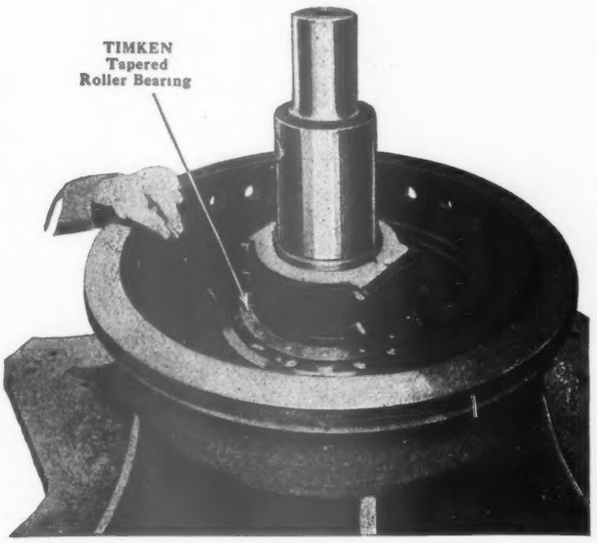


PX POWER CENTER PF POWER CENTER PC POWER CENTER

Comparative sizes of the three types of Timken Equipped Power Centers

THE powers combine time-tested features of Reid design with proven effectiveness of Timken Roller Bearings, resulting in practically eliminating friction in the center with consequent saving of power.

Type PC is furnished with 16, 18, or 20-foot diameter, 16-inch face wheel; Type PF with 24-foot diameter, 20-inch face wheel; and Type PX with 24-foot diameter, 28-inch face wheel.



WRITE FOR BULLETIN No. 39

JOSEPH REID GAS ENGINE COMPANY
OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES—Marietta, Newark, and Logan, Ohio; Charleston, W. Va.; S. R. Shoup, 724 Board of Trade Building, Los Angeles, California.

EXPORT SALES REPRESENTATIVE—Oil Field Equipment Co., Inc., 30 Church Street, New York City.

DISTRIBUTORS—Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Oklahoma, Distributors for Bradford and Pittsburgh, Pa., Kentucky, Oklahoma, Kansas, Texas, Arkansas, Louisiana, and Wyoming; R. B. Moore, Bolivar, N. Y.; distributed in California by The Republic Supply Co. of California, office address, 2122 East Seventh St., Los Angeles, Cal.

Company, Well and Location	Initial Production Bbls.	Depth
(Continued from page 78)		
COSHOCTON COUNTY—		
Bell Bros., Ringwalt 1	*	640
Preston Oil Co., Shiebe 2	¶1¼	3551
ATHENS COUNTY—		
Craig & Co., Peasley 7	¶¼	1158
Smith & Thomas, Curtis 2	1	1388
WAYNE COUNTY—		
Ohio Fuel Gas Co., Fulton 1	¶¼	....
Bryan & Co., Wise 2	*	572
SUMMITT COUNTY—		
George Eagon, Herring 1	¶1¼	3631
HARRISON COUNTY—		
Bell & Scholl, Guy 1	¶¼	....
PERRY COUNTY—		
Bell & Scholl, Guy 2	¶1	3601
STARK COUNTY—		
Johnson & Stolz, Koesis 1	¶1¼	3942
MAHONING COUNTY—		
Pittsburg Interests, Shocker 1	*	....
NORTHWESTERN OHIO		
SENECA COUNTY—		
Ohio Oil Co., Miller 2	70	1532
Columbus, Tiffin Oil Co., Jacobs 1	2	1240
August Oil Co., Flechtner 4	¶¼	1503
J. L. Beam, Park 1	*	1572
HANCOCK COUNTY—		
Newton Oil Co., Fullwiler 5	30	1310
Star & Clark, Stauffer 13	20	1375
AUGLAIZE COUNTY—		
Frank Wehrer & Co., Wehrer 5	20	1233
SANDUSKY COUNTY—		
Gibsonburg Oil Co., Fought 1	50	1339
ALLEN COUNTY—		
Ira B. Post & Co., Lenney 9	20	1368
B. L. Carman & Co., Baldwin 1	15	1401
INDIANA		
GIBSON COUNTY—		
Roxana Pet. Co., Onyett 2	¶11¾	1475
ILLINOIS		
ST. CLAIR COUNTY—		
Ava Oil & Gas Co., Dupo High School lot 3	50	529
Landwehr & Sacks, E. St. L. & C. W. R. R. 2	50	541
E. St. L. & C. W. R. R. 4	55	532
Ohio Oil Co., Tarlton 3	325	585
Frye 1	290	714
Dyroff 5	54	576
St. Clair County Oil Co., Hutchinson lot 1	160	562
Thos. Wheland, Nillman 1	200	553
H. & M. Operating Co., Heller lots 1	125	563
Lewis L. Hick, Vickers-Beck lots 1	75	552
Tivy & Minges, Zeller lot 1	12	590
Benois & Co., Probst lot 1	*	725
Poulton & Sparks, Lindermann 1	20	564
L. G. Blackman & Co., Shult 1	15	562
Coleman & Timberlake, Winterhoff-LeComp lots 1	50	542
Zepenfeld & Pruver, Dickey lot 1	50	566
Yeager & Morris, LaCroix 1	30	570
Robinson & Knox, Weisenborn 1	5	540
WABASH COUNTY—		
J. S. Young, Jr., & Co., Keyser 11	30	1461
Ridge Farm O&G Co., Gilliatt 1	28	1298
Ridge Farm O&G Co., Wright 1	*	1603
Phipps, Blosser & Co., Holson-Dorney 1	*	1528
LAWRENCE COUNTY—		
Phipps & Co., Clark 7	40	348
Silurian Oil Co., Combs 25	30	1504
CRAWFORD COUNTY—		
Walter Squires & Co., Titsworth 1	*	1100
MICHIGAN		
MUSKEGON COUNTY—		
Reed Oil Co., Young 7	1200	2043
Nelson & Witt, Horton 5	1000	2054
Nelson & Witt, Fenner 2	200	2063
Puritan-Majestic Oil Co., DeGrott 2	750	2025
Witt & Wyant, Fenner 2	500	2060
Fenner 3	800	2061
Chas. W. Marsh & Co., Hallock 5	500	2021
Ohio Producing & Ref. Co., Malone 3	400	2038
Neely, Foster & Co., Bueau 1	250	....
Mitchell & Mesiroff, Norris 3	350	2029
Swastika O&G Co., Berkema 2	¶5-20	....
Continental O&G Co., Angel 14	25	....
Peerless O&G Co., Ginimo 1	10	1750
Fleegher-Ohlson Assn. Kolovitz 1	5	1945
Wright Oil Co., Farr 1	*	2062
ISABELLA COUNTY—		
Chippewa O&G Co., Joclyn 3	800	3564
Pure Oil Co., Roebuck 2	400	3550

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
BUTLER COUNTY—		
Empire, Koogler 82, sw nw nw, 20-26-5e	75	2543
Koogler 83, se nw nw, 20-26-5e	75	2570
COFFEY COUNTY—		
Ellis and Ritchie, Delmer 1, sw nw ne se, 6-23-15e	25	1579
R. E. Smith, Jasper 1, sw se, 15-19-14e	*	1791
Union Gas Co., Rogers 1, sw nw, 9 22-14	*	1504
GREENWOOD COUNTY—		
Huston Oklahoma Oil Co., Sullivan 13, nw se nw nw, 14-24-12e	40	1758
Foster Pet. Co., Scott 2, ne sw se, 7-24-12e	20	1578
Simmons & Amerada, Ellis 8, sw nw sw, 26-23-11e	15	1917
Texas, Edwards "C", 6, ne sw se, 21-23-11e	800	1978
Lassen et al, Coulter 2, ne se nw, 6-25-9e	15	2219
Transcontinental, Cook 1, sw ne, 15-25-10e	*	2303
Pixlee 6, se nw ne, 10-22-10e	*	2285
Phillips, Pixlee 5, sw se nw, 10-22-10e	*	2256
MARION COUNTY—		
Shell, Rampel 1, ne se se, 12-19-2e	250	2829
Frank Moore, Miller 1, ne, 26-19-1e	*	3392
Mayre et al, Propp 1, sw ne, 10-18-2e	*	3111
NESS COUNTY—		
Barnsdall, Lank 1, c sw, 35-18-21w	*	4755
OSBORNE COUNTY—		
Jarvis et al, Jellison 1, se, 13-10-15w	*	3578
SEDGWICK COUNTY—		
Sullivan et al, Shelly 1, nw ne se, 32-29-2e	*	3606
Vickers Pet. Co., DeVore 1, se ne ne 16-26-2e	*	3305
Bu Vi Bar et al, Reed 3, sw se se, 1-26-1w	1035	3371
Reed 2, nw se se, 1-26-1w	895	3374
W. F. Kenny et al, Richards 1, ne sw sw, 15-26-2e	1150	2930
Derby, Hadick 1, sw se sw, 15-26-2e	820	2918
T. M. Deal et al, Townlot 1, ne sw sw, 15-26-2e	782	2923
Mars, Miller 1, se sw, 2-26-2e	450	2894
Bu Vi Bar et al, Shawver 8, nw sw nw, 7-26-1e	835	3370
STEVENS COUNTY—		
Sidwell et al, Kelly 1, se nw, 16-34-38w	*	1310
WOODSON COUNTY—		
Walter Otto, Divens 2, se sw, 1-26-13e	3	376
Kirby 1, nw se nw, 12-26-13e	3	374
C. A. Holmquest, Brovard 1, nw se, 13-26-13e	3	318
Walter Otto, Divens 1, sw se se, 1-26-13e	3	372

OKLAHOMA

Company, Well and Loctaion	Initial Production Bbls.	Depth
COTTON COUNTY—		
Baldwin and Sultan, Rhone 1, nw se se, 35-1s-10w	60	2187
Clifford Moore, Chambers 4, ne se se nw, 2-2s-10w	40	2179
Bridwell et al, Crow 1, se sw sw, 24-1s-11w	*	2597
Moore et al, Cobb 2, nw sw sw ne, 2-2s-10w	*	2360
CREEK COUNTY—		
Texas, Harjo 1, ne nw, 35-14-9e	*	3666
W. H. Elson et al, Harjo 1, ne sw sw, 27-14-10e	*	3337
Billingslea and Riverland, Deere 1, ne sw ne, 28-14-10e	*	3301
Wilcox, Nash 10, ne sw sw, 24-15-10e	*	2974
A. A. Bailey et al, Williams 1A, se nw ne, 30-19-8e	*	3330
Kurell Oil Co., Davis 1, ne se se, 11-17-11e	20	1208
R. E. Perry, Hinton 1, ne nw sw, 25-19-8e	50	2267
Gled, Gilbreath 1, ne nw nw, 31-19-9e	¶1	2551
GRANT COUNTY—		
Argo, Hewell 2, se, 22-27-3w	40	4000
HUGHES COUNTY—		
Gypsy, McNevins 1, sw, 5-8-9e	*	3530
Harris and Hayes, Grayson 1, c sw sw, 18-9-10e	¶6	3118
Magnolia, Godfrey 1, se sw se, 6-8-9e	¶5	3617
KIOWA COUNTY—		
Alexander et al, Ditmar 2, ne sw se, 18-6n-16w	3	475
LEEFLORE COUNTY—		
LeFlore County Gas & Electric Co. 5, se ne, 9-9-27e	*	3250
J. V. Bailey, House 1, c ne se, 15-16-4e	*	4631
Flynn and Morgan, Finely 1, sw, 19-16-5e	*	4220
MUSKOGEE COUNTY—		
Jolly and Stone, McDaniel 1, csl se sw, 33-16-15e	*	1892
OKFUSKEE COUNTY—		
Ramsey, Seevrs 2, se nw ne, 36-11-9e	*	3958
Sinclair, Micco 1, se nw sw, 36-11-9e	*	3200
Atlantic, Robinson 5, ne nw sw, 12-10-11e	*	2135
Producers & Refiners Corp., Monarye 4, sw se se, 29-12-10e	¶10	3162
Champlin, Carter 13, ne se sw, 15-11-11e	510	3497
Jarvis and Holm et al, Buckley 1, ne nw nw, 21-10-11e	200	2614
W. L. Umburn, Hill 2, ne se nw se, 11-10-11e	15	2055
Hazlett et al, Johnson 1, n ese ne, 3-10-11e	5	830
OKMULGEE COUNTY—		
Whitfield et al, Grayson 7, sw nw ne sw, 3-15-11e	10	2256
Sheridan, Grayson 4, se ne nw sw, 3-15-11e	25	2257
Red Bank, Henry 1A, nw ne se, 27-12-12e	18	3427
Nicholson, McIntosh 3, ne, 14-11-13e	*	2467
Highland, Barnett 7, se ne ne nw, 2-15-14e	*	1475
Thompson and Jordan et al, Cole 1, ne se sw, 28-15-12e	*	2780
Kessler Pet., Colbert 5, c nw nw, 16-14-14e	*	1735
E. M. Cranfield, Anderson 2, se sw sw, 8-14-15e	*	2570
J. H. Rebold, Hardridge 6, sw se ne, 27-13-14e	*	2565
OSAGE COUNTY—		
Galt Brown 6, cnl s½ n½ nw, 7-24-8e	15	2346
Kay County Gas, "B" 7, nw sw ne, 22-24-7e	¶12	2450
Wrightsman 1, ne sw, 32-22-8e	15	2130
Peters et al 1, ne sw, 31-22-9e	*	2577
Braden and Moore 17, ne se nw, 12-21-8e	*	658
PAWNEE COUNTY—		
Peter Adamson, Parker 4, ne sw se, 24-21-7e	*	2850
Bartlett et al, "B" 1, ne se se, 15-20-9e	¶1	935
Johnson Oil & Ref. Co., Scully 1A, ne nw ne, 25-21-7e	310	2737
PONTOTOC COUNTY—		
American, Robertson 2, sw ne sw, 19-5-5e	110	2505
POTTAWATOMIE COUNTY—		
Magnolia Pet. Co., Green 3, sw ne nw, 20-8-5e	160	4190
Amerada and Barnsdall, Wallace 4, sw se sw, 17-8-5e	275	4100
Prairie, Laster 4, sw se ne, 19 6-4e	90	3764
Tex-Okla, Townlot 1, nw ne nw, 19-6-4e	380	3673
T. B. Slick et al, Alexander 1, ne nw se, 19-6-4e	230	3647
Indian Territory Illuminating, Shobe 1, se, 35-8-4e	580	4134
Magnolia et al, Hubanks 2, se nw, 17-7-4e	600	4263
Phillips, Grace 1, ne se ne, 2-7-4e	270	4246
Independent and Twin State, Newell 1, sw se, 17-6-4e	*	4701
Sinclair, Nadash 1, (owdd) ne sw nw, 29-7-5e	*	4257
Rush and Vaughn, Townlot 1, sw nw se, 18-6-4e	*	4050
SEMINOLE COUNTY—		
Empire, Cluck 11, nw se ne, 11-8-5e	*	4297
Mid Continent, Smith 10, ne nw se, 5-7-7e	3425	4221
Carter, Strothers 2, sw se nw, 11-9-6e	595	4200
Amerada, Nicey 1, sw se se, 3-9-6e	75	4345
Shell, Holatka 1, sw ne se, 7-6-8e	1700	4193
Signal, Bond 1, sw ne, 13-6-7e	1080	4163

(Continued on page 82)

THE ROMANCE OF OIL

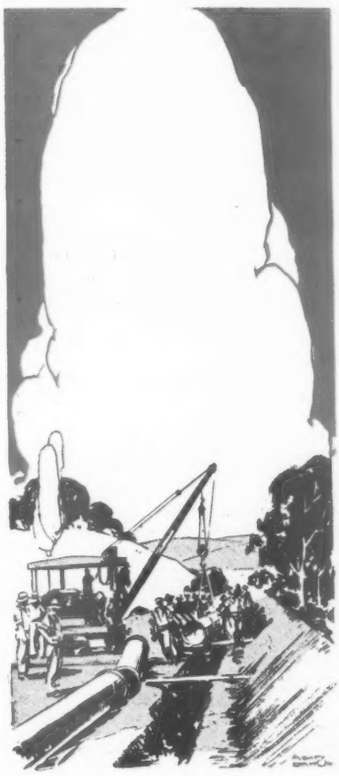
(Number Six of a Series)

The Pipe Line

There is much of noise and haste and feverish activity in the oil industry. The deep storehouses of nature cannot be tapped by mild methods and gentle manners. Yet there is nothing in industry that can compare with the quietness and smooth efficiency of a pipe line once it is completed.

Through desolate wastes, under sluggish rivers, through peaceful apple orchards, through murky swamps, over lonely hills, the buried pipe line performs its service without a single sound except the subdued noises of the intermittent booster stations.

Oil and gas comes from the ground in one place. It is needed in another. The pipe line brings the two together.



The first pipe line on record for oil was built to Pithole City in 1865. It was four miles long and was of two inch screw pipe. Now there are over 150,000 miles of oil trunk and gathering lines representing an investment of more than $5,250,000,000. Of this amount approximately three billion is in the United States. Expenditures in the pipe line industry average a quarter of a million dollars a year. At any one time, or at all times, there are approximately 2,700,000 barrels of oil moving through these silent carriers.

HERCULES SUPPLY COMPANY

J·T·McCARTHY JR

EVERYTHING FOR OIL WELLS

From the purchase of the pipe to the keeping of pump stations in repair, the Hercules Supply Company can render to pipe liners an adequate service. You can always find what you want at a Hercules Store. Service is given as the oil man wants it.

American Wire Lines - Lucey Rotary Products - Etna Tubular Products - Standard Seamless Tubular Goods - Guiberson Tubing Catchers and Swabs - Hughes Tool Co. Products - Baker Casing Shoe Products - Bettis Protectors - Walworth and Crane Valves - Quaker City Belting. Hundreds of other lines and items in stock in every Hercules Store. Worthington Pumps, Pipe Line Paint.

General Offices: Fort Worth

Stores: Pampa Pyote (Wink) Borger Vernon (Grayback Crossing)

(Continued from page 80)

Company, Well and Location	Initial Production Bbls.	Depth
STEPHENS COUNTY—		
Pace et al, Bristowe, ne se, 29-2s-7w	*	1947
Magnolia, Kagay 24, sw se sw, 34-1s-8w	*	2465
Magnolia, Peck 6, se ne, 13-2s-8w	65	1488
Pace et al, McMasters 7, se nw se ne, 13-2s-8w	25	1440
Wirt Franklin, Spain 1, sw se nw, 9-2s-6w	615	3238
Murphy, Fobb "B" 16, sw se nw sw, 12-2s-8w	12	1525
Magnolia, Peck 5, ne se se ne, 13-2s-8w	5	1484
Ellis Drlg. Co., Nigh 5, se sw nw, 34-1s-8w	¶8½	1846
Roy Carter, Simpson 7, nw se se, 34-1s-8w	5	1827
American Pipe Line, Dexter 7, ne se se nw, 34-1s-8w	¶5	1866
Winkler and McQueen, Springer 6, se nw se nw	25	1696
Ellis Drlg. Co., Ketchem 4, se ne nw nw, 25-1n-9w	10	2072
TULSA COUNTY—		
Byrne and Green, Flippen 1, ne nw se, 28-18-14e	¶2½	1417
Byrne and Green, Flippen 2, nw ne se, 28-18-14e	¶1¼	1468
WAGONER COUNTY—		
H. D. McCracken, Childers, csl ne nw, 21-18-17e	*	891
C. F. Finefield, Willis 1A, nw ne ne sw, 34-18-17e	*	873
Midco, Drew 2, se sw, 15-18-17e	¶1	825

NORTH LOUISIANA

CADDO PARISH—		
W. D. Chew, Fee B-1	15	1855
R. W. Norton, M. Fortner 1, 5-22-16	*	5002
Dixie Oil Co., Hobbs 5, 21-21-15	*	1675
MOREHOUSE PARISH—		
Consolidated Carbon Co., White 2, 16-20-4e (burning gasser)	¶20	235
OUACHITA PARISH—		
Ark. La. Pipe Line Co., Kate Cole 1, 19-18-4e	¶3	2196
Pipes & Mack, White 1, 7-18-5e	¶8	2215
Southern Carbon Co., Fee 53, 23-19-4e	¶1.33	2234
LA SALLE PARISH—		
O. W. Clark, Tr., Tullos 8, 23-10-1e	150	1494
Louisiana O. R. Co., Tremont B-39, 25-10-1e	180	1530
RICHLAND PARISH—		
W. C. Feazel, McCoy 1, 33-16-6e	¶34½	2452
Southern Carbon Co., Tegola B-1, 5-15-6e	*	2505
UNION PARISH—		
Edwin S. Hall, Spencer 2, 36-21-3e.	¶37	2131
Interstate Nat. Gas Co., Parks 1, 23-20-4e	¶6	2146
WEBSTER PARISH—		
Palmer Corp., Tillman 5, 27-21-10	¶1½	4681

SOUTH LOUISIANA

HOUMA GAS—		
Sou. Gas Co., Waterproof 1	*	2170
PORT BARRE—		
The Texas Co., Botney Bay Fee 2	1100	3620
ROANOKE—		
Vacuum Oil Co., Earl et al 1	*	5920
DeVilbiss 1	*	5685

ARKANSAS

UNION COUNTY—		
Bailey & Trimble, El Dorado Realty 1, 7-17-13	*	768
D. N. Stewart, Murphy 1, 9-16-15	20	2404
UNION COUNTY (Smackover)—		
Ark. Fuel Oil Co., Bilyew 3, 9-16-15	30 oil 100 sw	2340

TEXAS

SOUTHWEST TEXAS

CEDAR CREEK—		
Trapshooter Reilly, Yost 6	50	1496
SALT FLAT—		
Cranfill & Reynolds, J. L. Northcut 3-A	*	2740
Humble, C. F. Dye 5	225	2674
C. F. Dye 4	700	2723
Floyd Gray 4-A	200	2680
Floyd Gray 4-C	300	2672
Floyd Gray 5-C	200	2678
Moses & Baggett 1-A, wo	300	2668
Moses & Baggett 12-B	75	2689
J. L. Northcut 3-B	400	2704
J. L. Northcut 5-A	50	2707
Moses & Baggett 2-B, wo	85	2692
Moses & Baggett 7-B, wo	85	2689
Moses & Baggett 10-B	150	2699
Clyant Smith 6-B	*	2275
T. A. Tiller 5	700	2663
T. C. Hadley, Merriweather 3	30	2758
BROOKS COUNTY—		
W. G. French, Riley Allen 4	*	1500
DUVAL COUNTY—		
Humble, Kohler 23	*	2460
Kohler 29	125	1815
Magnolia, Hahl 4-B	250	2341
Hahl 5-B	400	2327
Sun Oil Co., Lopez 1	*	3015
S. & O. Oil Co., Hahl 5, sur 250, blk. 23	300	2336
Partes-Trussell-Cezeaux-Putnam Moody 2	55	2200
JIM HOGG COUNTY—		
Magnolia, M. S. B. 42, sur 235	*	3184
M. S. B. 40	*	3000
T. J. Conway, Leyendecker 3	*	1425
SAN PATRICIO COUNTY—		
Moran et al, Texas Co., Fee 1, Roos subdiv., blk 6, White Pt.	¶15	2308
WEBB COUNTY—		
O. W. Killam, Billings 6	*	2000
ZAPATA COUNTY—		
Jno. Pappas, Cuellar 1, porcion 33, blk. 5	*	1412
H. Muckleroy, Jr., Trevino 1	30	1300

EAST CENTRAL TEXAS

LIMESTONE COUNTY—		
A. F. Richardson, R. C. Jones 1	*	1637

EAST TEXAS

BOGGY CREEK—		
Humble, J. C. Beard, Jno. Trimner sur	*	3850
Elliott & Clark 3-A	*	2934
PANOLA COUNTY—		
Calotex O&G Co., W. C. Agurs 4, J. Womack sur,	¶26 (1200 R. P.)	2290
Eureka Nat. Gas Co., Gulley B-1, James Matthews sur	¶1¼	2300
Natural Gas Prod. Co., Roquemore 9, B. C. Jordan sur	¶26	2660
Nemours Corp., G. C. Tiller 4, Mitchson sur	¶1	2300
Texas Co., Adams A-12, S. B. Lacy sur	¶1½	957
D. Thomason, G. C. Tiller 3, J. Storey sur	¶2	2375

TEXAS GULF COAST

ALLEN DOME—		
Shell, Allen 4	*	5184
BATSON—		
Paraffine Oil Co., Parrafine 80	5	1130
BIG CREEK—		
Gulf, T. W. Davis 54	3800	4070
BLUE RIDGE—		
South Texas Pet. Co., Davidson 2, dd	50	3570
CLAY CREEK—		
Sun, Hunt 2	¶2	1065
Hunt 1	*	2220
GOOSE CREEK—		
C. T. Rucker (Chicago Oil Corp.) Jones 1	*	820
HIGH ISLAND—		
McLean Oil Co., Cade 11, dd	*	3770
HUMBLE—		
The Texas Co., C. O. & G. Co. 29	635	3185
South Texas Pet. Co., Bert 1	*	5850
LONG POINT—		
Gulf, Wolfe 16	*	700
LOST LAKE—		
Pure Oil Co., Mayes 2	200	2782
MARKHAM—		
Rycade-Humble, Kountze 6	*	4290
NORTH DAYTON—		
Sun, Kovaleik 2	*	5460
PIERCE JUNCTION—		
Gulf, E. R. Taylor et al 29	400	4500
RACCOON BEND—		
Humble-Valley, R. Deutrich 3	800	3500
R. Thompson 4	125	3551
Krusliska 1	*	1120
REFUGIO—		
Houston Gulf Gas Co., Adkins 3	*	3898
W. L. Pearson, Tr., Fox 1	550	3737
Oigufer Oil Co., Ryals 2	700	3656
SARATOGA—		
Rio Bravo Oil Co., Cotton 37	10	980
SOUR LAKE—		
Lake View Oil Co., Hardin County 61	25	1350
SOUTH LIBERTY—		
Sun Co., Mitchell 45	800	3330
Liberty Pet. Co., Turner 2	*	1775
Pierce & Rogers, Pickett 1	*	400
SPINDLE TOP—		
Gulf Oakwood Realty Co. 6, dd	235	3000
Yount-Lee Oil Co., Gladys City 5, wo	700	2934
Gladys City 68, wo	270	3200
Gladys City 94	185	4120
McFaddin 54, wo	780	4263
McFaddin 89, wo	320	4916
McFaddin 14, wo	175	2700
McFaddin 107	*	4600

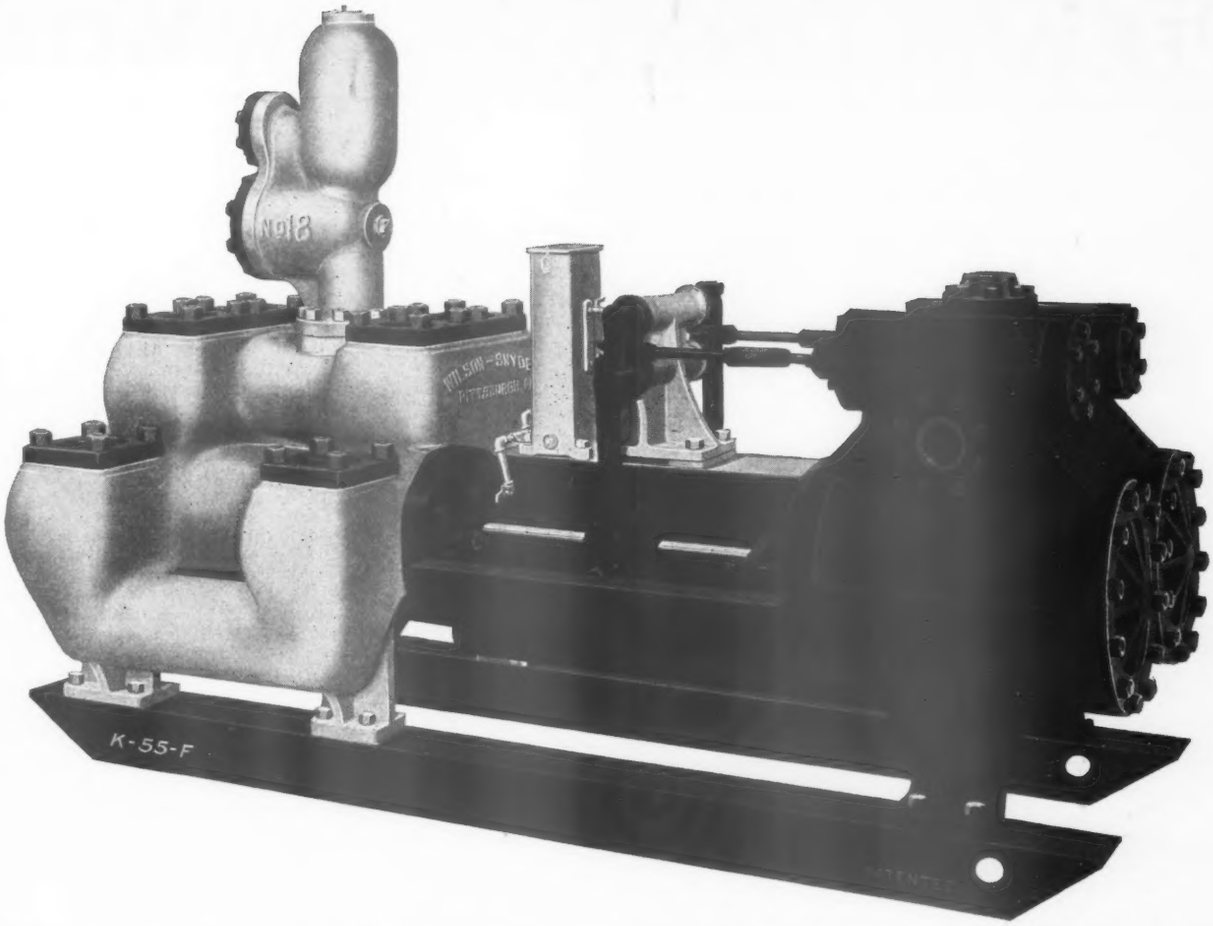
TEXAS PANHANDLE

CARSON COUNTY—		
Gulf Prod. Co. E. Cooper 2	450	3140
Mid-West Exploration Co., Cooper 2	300	3096
Skelly Oil Co., H. Schafer 15	600	3250
H. Schafer 16	615	3040
GRAY COUNTY—		
Amagray Oil Co., Chapman 2	¶8	3045
A. R. Anderson et al, Heithott 1	90	3369
Biggs et al al, J. S. Morse 1	¶3	2696
Gulf Prod. Co., Wm. Jackson 4	960	2964
S. Faulkner 1-A	¶4½-3765	2880
Panhandle Ref. Co., G. H. Saunders 1	*	2871
G. H. Saunders 2	25	2850
Phillips Pet. Co., Wm. Jackson 5	40	2960
J. H. Palmer 4,	¶45-20,000	2855
Ray & Massie, A. Chapman 4	*	2952
The Texas Co., J. B. Bowers 11	3175	2969
J. E. Williams 4	185	2800
HUTCHINSON COUNTY—		
Danciger O&R Co. et al, J. L. Moore 1	100	3039
C. B. Penny et al, Johnson 1	¶70	2620
Phillips Pet. Co., Johnson-Edson 1	70	2950
Johnson-Florence 6	75	2876
Johnson-Margaret 1	980	3051
J. M. Sanford-Chap 4	65	2970
WHEELER COUNTY—		
Martin & Dubois, O. Sasher 1	*	1844
The Texas Co., C. Hicks 1	¶12	2060

CENTRAL WEST TEXAS

BROWN COUNTY—		
J. Bearman et al, Miller 4	15	1098
Gunn Prod. Co., Gunn 10	*	1217
Humble O&R Co., Byler 13	*	1366
Armstrong 22	30	1216
T. G. Shaw et al, Jopling 1	8	1780
CALLAHAN COUNTY—		
E. P. Campbell-Humble et al, Alexander 1	120	1055
COLEMAN COUNTY—		
Cranfill-Reynolds Co., et al, Vance 1	*	725
Dallas Pet. Co., Babbington 2-A	10	1052
Tower & McKanna, Inc., Crowder 1	¶37½	1988
EASTLAND COUNTY—		
Chestnut & Smith Corp., Stubblefield 1	*	3168
Kirkland 1-B	120	3448
Forster et al, Spencer 2	4	1331
J. H. Fulcher et al, May 1	*	1505
Lewis & Moore, Harbin 4	135	1292
Lone Star Gas Co., Storm 1	¶6¾	3588
Southern Oil & Prod. Co., Webb 1	¶1-8	1246
SHACKELFORD COUNTY—		
Less Combest Oil Co., Matthews 4	*	1153
Gibson-Johnson, Bowman 1	*	1620
F. W. Holder et al, Jackson 1	*	1225
A. J. Hughes et al, Hill 2	10	698
Tom James et al, Newell 1	15	1373
Reading-Sedwick & Webb, Newell 1	*	1692
Roeser-Pendleton-Continental, Cook 45-A (Sec. 61)	35	1232
STEPHENS COUNTY—		
Close Oil Co., Elliott 1	¶1¼-8	3609
Pitzer & West, Pratt 1	*	3342
Texas-Louisiana Power Co., Hefley 1	¶¼	1975

(Continued on page 88)



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PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

State—	Week ending Aug 3	Previous Week	Total this Month	Total this Year	This Week 1928	This Month 1928	1928 Year Total
Arkansas	7	..	7	93	..	..	331
California	22	16	22	803	15	15	1,207
Louisiana	15	16	15	505	7	7	680
Kansas	33	31	33	655	24	24	1,032
Oklahoma	75	53	75	2,009	88	88	3,744
Texas	204	179	204	5,176	128	128	8,297
Total	356	295	356	9,241	262	262	15,291

ARKANSAS

OUACHITA COUNTY—Phillips Pet. Co., El Dorado, W. M. Scott 2, sec sw ne Sec. 34-15-15. McDonald Bros., Camden, Wilson A-2, nwc ne sw Sec. 25-15-18. McDonald Bros. Camden, Wilson B-3, sec sw nw Sec. 25-15-18.

PULASKI COUNTY—Wonder State Dev. Co., Little Rock, Wilson 1, nec ne sw Sec. 21-2-11.

UNION COUNTY—Pure Oil Co., El Dorado, E. F. Gregory 10, nec se se Sec. 10-17-14. Grimes Bros., Inc., Tl Dorado, Mealy Hill 2, sec ne se Sec. 7-18-14. Standard Oil Co. of La., Shreveport, La., G. H. Goodwin 6, sec se ne Sec. 36-17-16.

CALIFORNIA

INGLEWOOD—Standard Oil Co., Vickers 1-23, 8-2-14.

KERN COUNTY—Shell Oil Co., Core Hole "F", 31-28-27.

KERN RIVER—Agey Pet. Corp., Agey 1, 28-27-27. C. C. M. Oil Co., No. 27, 23-28-27.

LONG BEACH—Sovereign Oil Co., No. 7, 24-4-13.

MIDWAY—Honolulu Consolidated Oil Co., No. 31, 8-32-24. Standard Oil Co., No. 52, 5-32-24. Honolulu Consolidated Oil Co., No. 73, 8-32-24.

SANTA FE SPRINGS—The Texas Co., Batson 6, 6-3-11; Weaver 9, 6-3-11; Foix 8, 6-3-11; Baldwin 5, 6-3-11; Standlee 6, 6-3-11. H. A. Bardeen, Santa Fe 4, 6-3-11. The Elmer Oil Co., Jameson 5, 6-3-11; Jameson 3, 6-3-11.

SEAL BEACH—Standard Oil Co., San Gabriel 24, 11-5-12.

SUMMERLAND—B. C. Morrison No. 1, 22-4-26.

SUNSET—Doyle Pet. Corp., Berta Wier 2, 8-11-23. North American Oil Consolidated, Sunset 2, 8-11-23. Standard Oil Co., Graham 2, 7-11-23.

VENTURA—Associated Oil Co., Lloyd 97, 26-3-23.

TEXAS

ARCHER COUNTY—Petroleum Prod. Co., Wichita Falls, A. M. Kunkel, 40, 8B, S 3, BBB&C sur, 300 ft w of No. 6. Moran Co., Wichita Falls, J. M. Bloodworth, 150, 3, M. Cartwright sur, 750 ft from n and e lines. W. L. Hawkins, Wichita Falls, G. R. Lemmond, 80, 1, BBB&C sur, 150 ft from e and 990 ft from s line. I. E. Silkwood, Wichita Falls, R. D. Sirigley, 66, 1, B 10, J. B. Hinds sur, 1979 ft from n and 150 ft from w line blk 10. Wise, Jackson & Devonian Oil Co., Sapulpa, Okla., J. M. Inman, 46, 1, 150 ft from n and 750 ft from w line. L. T. Burns, Wichita Falls, B. W. Garvey, 240, 1, 1862, TE&L sur, 1500 ft from w and 1200 ft from s li of sur. Petroleum Prod. Co., Wichita Falls, A. M. Kunkel, 40, 9B, S 3, BBB&C sur, 300 ft w of No. 7. Pandem Oil Co., Wichita Falls, W. H. Thomas, 1C, E 454, N. Thomas sur, 150 ft from s and e lines of lot 4. Trinity Oil Co., Wichita Falls, G. M. Benson, 60, 2, 1829, TE&L sur, 1200 ft from e and 750 ft from s line. Humble, Wichita Falls, W. L. Kunkel, 40, 6, S 3, BBB&B sur, 300 ft w of No). 5. Jones & Holcomb, Wichita Falls, W. H. Taylor, 3, B 72, Holliday sur, 300 ft s and 70 ft e of No. 2. Perkins & Cullum, Wichita Falls, W. L. Andrews, 16, A1, G. Bond sur, 150 ft from n and w lines. Continental Oil Co., Wichita Falls, W. J. Logan, A 200, A 3, A. Armes sur, 150 ft from n and e lines. L. T. Burns, Wichita Falls, L. W. McCrory, 40, 5, B 114, Amer. Trib sur, 50 ft e of No. 1. United Prod. Co., Wichita Falls, L. W. McCrory, 1K, B 31, L B, Amer. Trib. sur, 150 ft from n and e lines. Shappell Oil Co., Wichita Falls, J. D. Lyles, 160, 9, S 234, Hooper & Wade sur, 750 ft from s and 150 ft from w line. Clark & Cole, Iowa Park, A. J. Evans, 160, 1, J. Minton sur, 510 ft from n and 1800 ft from e line. Bridwell & Continental Oil Co., Wichita Falls, W. J. Logan, 220, 4, B 25, J. M. Taylor sur, 150 ft from e and 950 ft from s line. Bridwell Oil Co., Wichita Falls, W. L. Andrews, 24, 1, Bond & Cassidy sur, 150 ft from n and e lines. United Prod. Co., Wichita Falls, W. H. Taylor, 20, 6, B 11, Amer. Trib. sur, 300 ft e of No. 4. J. H. Freeman, Wichita Falls, Hennig, 60, 7, B 21, G. P. Meade sur, 300 ft w of No. 1. Hi-Land Oil Co., Wichita Falls, J. H. White, 40, 1, B 3, S 41, Amer. Trib. sur, 150 ft from s and w lines. Fresno Oil Co., Wichita Falls, H. O. Prideaux, 130, 25, J. Dorsey sur, 750 ft from s and w lines. Fain-McGaha Oil Corp., Wichita Falls, W. J. Logan, A 160, 4, No. 25, J. M. Taylor sur, 300 ft s of No. 3. Archer Drilling Co., Wichita Falls, J. I. Staley, 20, 1, B 20, L 15, Amer. Trib. sur, 150 ft from e and 490 ft from s line. Petroleum Prod. Co., Wichita Falls, L. F. Wilson, J 35, 2, B 7, Geraldine sur, 300 ft from n and 150 ft from w line. Kemrow Co., Electra, C. A. Mangold, 195, 19, B 21, C. Wright sur, 1104 ft from n and 600 ft from e line. R. J. Williams, Wichita Falls, J. A. Kunkel, 40, 1, B 4, T. McCoy sur, 750 ft from n and 150 ft from w line. Texas Co., Wichita Falls, R. N. Chancellor, 149, 1, B 32, Club Ranch sur, 150 ft from n and w lines of B 32. Continental Oil Co., Wichita Falls, J. T. Richardson, 117, 8B, B 10, T. McCoy sur, 340 ft e No. 5, 9B, 500 ft from n and 150 ft from w line. Douglas Oil Co., Wichita Falls, W. J. McClure, 100, 1, B 13, Crawford sur, 1050 ft from n and 150 ft from w line. Perkins & Cullum, Wichita Falls, L. F. Wilson, 10, B 114, Amer. Trib. sur, 450 ft from s and 85 ft from e li lot 4.

BROWN COUNTY—J. E. Beall, Brownwood, A. T. Armstrong, 40, 1, S 1, H&GN sur, se corner. Young Bros. & Alexander, Inc. & Woodley Pet. Co., Fort Worth, W. H. Kilgore, 250, 10, S 152, H. McClure sur, 150 ft from n and e lines. S. B. Owens, Inc., Brownwood, S. B. Cowan, 80, 2, No. 3, W. Ahrenbeck sur, 550 ft from e and 1552 ft from s li of Sur. Venmex Oil Co., Wichita Falls, R. Hickman, 50, 7, T. Benson sur, 800 ft e of No. 4. E. H. Ramsey, Rising Star, J. Woolridge, 14, 1. I. N. DeMont, Cross Plains, C. N. Anderson, 110, 8, No. 282, S. Jones sur, 500 ft w of No. 2. Texas Co., Wichita Falls, S. C. Kesler, 80, 1, S 42, HT&B sur, 150 ft from s and e lines of s½ of sw¼. Lloyd Oil Corp., Fort Worth, J. R. Collier, 190, 12, S 139, W. A. Smith sur, 100 ft n of No. 12. S. B. Owens, Inc., Brownwood, E. F. George, 30, 1, No. 76, 550 ft from n and 150 ft from e line. P. K. French, Fort Worth, D. Belvin, 43, 1, S 42, HT&B sur, 150 ft from n and w lines.

BAYLOR COUNTY—Harry Hines, Wichita Falls, M. G. Harker, 40, 1, S 86, T&NO Ry. sur, 150 ft from n and e lines sw¼ of nw¼.

BEXAR COUNTY—F. H. Eckert, San Antonio, P. Dobrowlski, 5, S 4, No. 52, 330 ft sw of No. 4. C. J. LeCompte, San Antonio, R. Diaz, 30, 3, No. 32, J. M. Urriegas sur, 150 ft from s and e lines.

CALLAHAN COUNTY—Woodley Pet. Co., Shreveport, La., E. L. Finley, 40, 3C, S 75, Bayland Asy. sur, 450 ft from n and e lines of se¼ ne¼. Moutray Oil Co., Abilene, A. Hickman, 320, 45, S 149, BBB&C sur, 322 ft ne of No. 33; B. W. Owens, 40, 1B, S 80, Bayland Asy. sur, 450 ft from n and 660 ft from w li se¼ sw¼. Humphreys Bros., Inc., Brownwood, T. W. Gary, 80, 7, S 40, D&D Asy. sur, 150 ft from e and 285 ft from n line; 8, 450 ft from e and 585 ft from n line; 9, 750 ft from e and 585 ft from n line. Hartt Bros., Baird, J. S. Hartt, 40, 1, S 7, Bayland Asy. sur, 150 ft from n and 1400 ft from e li sw¼ nw¼. Woodley Pet. Co., Shreveport, La., E. L. Finley, 120, 5A, S 74, Bayland Asy. sur, 450 ft from n and w li nw¼ of sw¼.

COLEMAN COUNTY—Levi Smith et al, Coleman, J. P. Morris, 25, 1, No. 483, J. H. Wood sur, 128 ft from n and 296 ft from e line.

COOKE COUNTY—Humble Oil & Refg. Co., Wichita Falls, Poteet, 200, 5, P. P. Anderson sur, 300 ft s of No. 3. Shell Pet. Corp., Wichita Falls, Fields-Bower, 101, 2, C. Stanley sur, 750 ft from n and 150 ft from w line. Kewanee O. & G. Co., Tulsa, Okla., Lanier, B 104, 7, E. T. Ry. sur, 2430 ft from n and 150 ft from w line. Rathke Oil Co., Wichita Falls, L. E. Tomlinson, 50, 1, R. Travino sur, 150 ft from s and e lines.

CHAMBERS COUNTY—Sun Oil Co., Dallas, Fee, 7, 1, Wm. Hodges sur, 50 ft from n and e lines.

COLORADO COUNTY—Texas Co., Houston, L. A. Machemal, 80, 1, A. Stopel sur, 693 ft from ne and 550 ft from se line of sur.

CARSON COUNTY—Cities Service Gas Co., Bartlesville, Okla., Lane 2, S 62, B 4, I&GN sur, center of ne¼.

CALDWELL COUNTY—Cranfill & Reynolds, Cisco, Beversdorf, 5, 1, A. Floyd. Humble, Houston, C. F. Doyle, 40, 6, J. Hinds sur, 492 ft from s and 465 ft from w line.

CLAY COUNTY—Mid-Continent Holding Corp., Wichita Falls, Johnson B 95, 11, B 49, P.C.S.L. sur, 1162 ft from w and 896 ft from s li B 49.

CROCKETT COUNTY—W. A. Moncrief, Fort Worth, J. S. Todd, 40, 3, [illegible] 29, B Wx, 664 ft from e and 659 ft from s li se¼ of se¼; University, 40, 1, S 13, B 18, Pecos sur, 50 ft from n and e lines of ne¼ of nw¼. Andrews, 160, 1, S 57, B UV, center of sw¼ of sec.

DUVAL COUNTY—Magnolia, Dallas, M. Hahl, 790, 6, No. 250, 300, 300 ft w of No. 5. Southern Oil Co., King-Harper, 220, 1, S 323, 337 ft from n and 1625 ft from e line.

EASTLAND COUNTY—Lone State Gas Co., Dallas, C. E. Allen, 2000, 2, B 3, T. A. Howell sur, 1143 ft from w and 915 ft from s li of B 3. J. A. Bearman et al, Cisco, J. E. Kincaide, 80, 1, S 80, B 4, H&TC sur center of ne¼ of nw¼. R. C. Outlaw, Ranger, W. Williams, 40, 1, L 18, B 3, McL.C.S.L. sur, 150 ft from n and w lines. Whiteside Bros., Gorman, L. E. Maxwell, 50, 1, S 2, B 29, H&TC sur, 150 ft from s and e lines.

FORT BEND COUNTY—Humble, Houston, Sugarland Ind., 9, W. Stafford sur, 500 ft n of No. 8. Sun Oil Co., Beaumont, E. C. Farmer, 125, 8, J. Scott sur, 50 ft sw of No. 7.

FISHER COUNTY—Cranfill & Reynolds, Cisco, Texas Cement Co., 600, 1, S 10, S. English sur, 330 ft from n and w lines.

GUADALUPE COUNTY—Texas Co., Houston, L. Anderson, 50, 1, J. C. Darst sur, 750 ft from e and 150 ft from s line; 2, 150 ft from n and e lines; 3, 150 ft from n and w lines; D. Wilson, 40, 2, H. C. Darst sur, 150 ft from s and w lines.

GLASSCOCK COUNTY—Houston Oil Co., Houston, L. D. McDowell, 80, A1, S 30, B 33,

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Twp. 2S, 330 ft from n and w lines of n½ ne¼.

GRAY COUNTY—Herrogan Oil Corp., Pampa, Bradford, 320, 1, S 123, B B2, H&GN sur, 90 ft from w and 330 ft from n li of sec. Phillips Pet. Corp., Bartlesville, Okla., J. Dan, 80, 2A, S 88, B B2, H&GN sur, 505 ft from w and 330 ft from n li n½ of ne¼.

HOWARD COUNTY—Amerada & Rycade Oil Corp., Fort Worth, D. Roberts, 240, 12, S 128, B 29, W&NW sur, 1022 ft from e and 666 ft from s li of sec. Moody Corp., Box 1911, Tulsa, Okla., D. Roberts, B 160, 23, S 137, B 29, W&NW sur, 990 ft from n and w lines of sec; 24, 990 ft from n and 1650 ft from n line of sec; 25, 990 ft from n and 1650 ft from w line of sec; 26, 1650 ft from n and w lines of section.

HARRIS COUNTY—Cullen & West Prod. Co., Houston, R. B. Morris, 100, 9, W. T. Charles sur, 200 ft w of No. 1.

HUTCHINSON COUNTY—Skelly Oil Co., Tnlsa, Okla., L. Bivins, 160, 1, S 84, B 46, H&TC sur, 306 ft from e and 1242 ft from s line.

HILL COUNTY—R. C. McElmury, Corsicana, M. P. Coates, 19, 1, J. P. McDonald sur, 460 ft from e and 60 ft from s line.

HARRISON COUNTY—Nick Barbare, Waskom, J. W. Furrh, 30, Lipscomb sur, 450 ft from w and 2553 ft from s line of sun.

HASKELL COUNTY—Midland Oil Co. et al, Fort Worth, A. Stone, 40, 1, R. W. Nabors sur, 1980 ft from w and 1170 ft from s line of Sur. Bernard & Wilson, Haskell, Reynolds, 60, 5, J. Fenner sur, 300 ft w of No. 3.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, Gladys, 95, J. A. Veatch sur, 132 ft from w and 152 ft from n line of blk 12.

JACK COUNTY—Panhandle Refg. Co., Wichita Falls, J. T. O. Smith, 171, 4, I. Hughson sur, 660 ft s of No. 3.

JIM WELLS COUNTY—E. W. Ogden, Houston, G. Farris, 648, 3, No. 1, B 1, M. Perez sur, 605 ft of center of n line. Magnolia, Dallas, C. Cook, 2901, 1, B 45, W. H. Sartain sur, 660 ft from s and e lines.

JIM HOGG COUNTY—W. R. Shankle, Laredo, R. Holbein, 10, 1, No. 3, B 11, Las Animas sur, 150 ft from n and w lines. T. J. Conway, San Antonio, B. J. Leyendecker, 40, 3, S 234, B 2, 150 ft from n and w lines.

JASPER COUNTY—J. M. Burnham, Fort Worth, J. M. Orton, 47, 1, W. I. Isaacks sur, 150 ft from s and w lines.

LIBERTY COUNTY—Sun Oil Co., Beaumont, L. Carr et al, 15, 11, J. Devore sur, 385 ft from w and 130 ft from s line; Mitchell, 100, 47, M. G. White sur, 150 ft w of No. 45. Neches Oil Co., Beaumont, J. K. Turner, 24, 1, M. G. White sur, 700 ft from e and 50 ft from s line. Union Exploration Co., Houston, N. Esperson, 672, 3, C. W. Fisher sur, 2635 ft from w and 2316 ft from s line.

MONTAGUE COUNTY—Bridwell Oil Co., Wichita Falls, E. E. Edmondson, 15, 4, T. R. Edmondson sur, 85 ft sw of No. 3; 5, 300 ft sw of No. 4.

NAVARRO COUNTY—Pure Oil Co., Fort Worth, A. Edens, 175, 1C, E. Friar; A. Edens, 270, 3B, E. Friar. Jacks & Daniels, Corsicana, N. Westbrook, 150, 1, I. P. Jeffers sur, 620 ft from nw and 495 ft from ne line.

NACOGDOCHES COUNTY—Geo. E. Ginter, Woden, J. O. Burnham, 95, 6, J. A. Chireno sur, 600 ft from n and 150 ft from w line.

PECOS COUNTY—O. J. Perren, Fort Stockton, Peterson, 90, 1, S 34, B 10, H&GN sur, 150 ft from s and w lines of Sec. Tower & McKanna, Inc., Wichita Falls, University, 160, 1, S 3, B 17, Univ. Lands sur, 330 ft from s and e lines of se¼. W. A. Moncrief, Fort Worth, University, 40, 1, S 13, B 18, 150 ft from n and e lines of ne¼ of nw¼; University, 80, 1, S 27, B 18, 303 ft from n and 800 ft from e li s½ of ne¼. Shell Pet. Corp., Wichita Falls, University, 640, 1, S 30, B 16, Univ. Lands sur, 1030 ft from w and 1661 ft from s li Sec.

PARKER COUNTY—J. P. McCoy et al, Bryson, W. H. Johnson, 200, 1, B 265, T&P sur, 450 ft from s and e lines.

REFUGIO COUNTY—Houston Oil Co., Houston, W. L. Rea, 20, 2, Refugio sur, 150 ft from n and e lines of lot 4.

SHACKLEFORD COUNTY—W. M. Moseley, Breckenridge, Griffith, 120, 2, S 37, L.A.L. sur, 150 ft from s and w lines se¼ of nw¼. Tannehill, Kiser &Fleming, Albany, J. B. Matthews, 640, 6, S 27, E. T. Ry. sur, 375 ft ne of No. 3. Big State Oil Corp., Dallas, Russ-Webb, 427, 9, S 17, B 11, T&P sur, 1950 ft from w and 750 ft from s li of sec. L. B. Tannehill, Albany, W. P. Newell, 409, 22, S 11, B 11, T&P sur, 350 ft e of No. 20. Vacuum Oil Co., Midland, J. B. Matthews, 40, 5C, S 29, E. T. Ry. sur, 330 ft w of No. 1. Oyler & Morris, Moran, Broyles, 60, 6, S 16, L.A.L. sur, 300 ft s of No. 4. Scott & Walker, Albany, L. C. Huskey, 320, 17, 568, TE&L sur, 300 ft s of No. 8; 18, 300 ft w of No. 16. Roy Sharrock, Moran, R. E. Burns, 40, 1, S 68, L.A.L. sur, 450 ft from e and 150 ft from s line. Caperton & Reynolds, Albany, N. Lynch, 40, 1, S 7, Blind Asy. sur, 257 ft from n and 300 ft from e li sw¼. Roeser & Pendleton & Transcontinental Oil Co., Albany, Cook, 640, A10, S 88, E. T. Ry. sur, 432 ft w of No. 9; A12, 50 ft s of No. 7; A11, 446 ft s of No. 10; A13, 734 ft e of No. 7. Roeser & Pendleton & Phillips Pet. Corp., Albany, Douglas, B6, 385, TE&L sur, 542 ft from ne and se lines of sec. Fred Pool, Moran, S. S. Driller, 40, 1, S 48, L.A.L. sur, 450 ft from n and w lines of Sec. J. W. Radcliffe, Electra, R. E. Collingsworth, 40, 2, S 13, Univ. Lands sur, 300 ft w of No. 1. Union Oil & Mining Co., Tulsa, Okla., L. C. Huskey, 320, 39, 518, TE&L sur, 1100 ft from n and 1175 ft from w line of Sec.. Scott & Walker, Albany, L. C. Huskey, 320, 16, 568, TE&L sur, 300 ft w of No. 2. W. M. Moseley, Breckenridge, Griffith, 120, 1, S 37, L.A.L. sur, 150 ft from n and w lines of sw¼ of nw¼. Roeser & Pendleton & Marland Oil Co., Albany, W. I. Cook, A45, S 61, E. T. Ry. sur, 419 ft w of No. 43. Roeser & Pendleton & Phillips Pet. Corp., Albany, E. Bernstein, 80, A9, 532, TE&L sur, 376 ft ne of No. 8. Sedgewick Oil Co., Abilene, J. H. Reynolds, 90, 1, S 147, TE&L sur, 150 ft from e and 2640 ft from s line of sec; A. M. Graham, 40, 1, 113, TE&L sur, 450 ft from w and 150 ft from s line; S. P. Robertson, 80, 1, B 8, T&P No. 1 sur, 150 ft from n and 1680 ft from w line of sur. L. B. Tannehill, Albany, W. P. Newell, 409, 23, S 11, B 11, T&P sur, 325 ft e of No. 22.

SCURRY COUNTY—Cottingham & Briscoe, San Angelo, J. R. Truss, 160, 1, S 427, B 97, H&TC sur, center of se¼.

STEPHENS COUNTY—Herbert Oil Co. of Texas, Fort Worth, J. H. Caton, 80, 1, S 5, B 5, T&P sur, 50 ft from w and 750 ft from s line of sec.

TAYLOR COUNTY—Dunigan Bros., Breckenridge, T. A. French, 80, 1, S 122, W. R. Willis sur, 937 ft from e and 931 ft from s li of Sur.

THOCKMORTON COUNTY—C. A. Pennell et al, Loving, J. Maelly, 200, 1, No. 697, 1800 ft from e and 450 ft from s line; C. L. Dowling, 60, 1, No. 908, 150 ft from s and w lines.

WICHITA COUNTY—Golding & Cochran, Wichita Falls, J. & H. Waggoner, A 120, 8, B 22, H. George sur, 300 ft n of No. 6. A. R. Lundell, Fort Worth, Electra Oil Land, 50, 1, SA&MG No. 1, 720 ft from e and 1050 ft from s line. M. G. & C. Drilling Co., Wichita Falls, R. L. Crudup, 13, No. 1, B 10, L 4, DCSL sur, 150 ft from s and w lines. Turman Oil Co., Wichita Falls, W. T. Waggoner, 101, 15, S 148, H&TC sur, nw of No. 7. C. A. Exerts et al, Wichita Falls, S. P. Gibson, 40, 1, B 302, Wag. Col. sur, 450 ft from w and 150 ft from s li B 302. C. P. Sheldon, Electra, J. M. Honaker, 100, 3, J. Cole sur, 750 ft from w and 150 ft from s line. Culbertson Co., Wichita Falls, J. & J. Waggoner, 465, 61, S 13, BS&F sur, 600 ft from e and 500 ft from s line. Texas Co., Wichita Falls, W. T. Waggoner, A361, S 13, HT&B sur, 50 ft from w and 750 ft from s line. Reno Oil Co., Wichita Falls, J. E. Roller, 80, 4, S. Holloway sur, 453 ft from n and 480 ft from e li Blk 8.

WILBARGER COUNTY—Staley, Wynne & Co., Wichita Falls, W. T. Waggoner, 40, B 5, S 25, H&TC sur, 687 ft from e and 190 ft from s line; W. T. Waggoner, 40, E1, S 25, B 4, H&TC sur, 205 ft from n and e lines; W. T. Waggoner, 80, G12, S 32, B 4, H&TC sur, 205 ft from w and 604 ft from s line; G11, 220 ft from n and 574 ft from e line; W. T. Waggoner, 60, AA1, S 33, B 4, H&TC sur, 150 ft from s and e lines. Phillips Pet. Corp., Bartlesville, Okla., W. T. Waggoner, NN 198, 23, S 42, B 4, H&TC sur, 983 ft from n and 2833 ft from e li sec. C. P. Burton, Wichita Falls, W. T. Waggoner, K 40, K 3, S 18, B 4, H&TC sur, 300 ft w of No. 1. C. J. Ferguson, Electra, W. T. Waggoner, 320, 1, S 36, B 4, H&TC sur, 1170 ft from w and 1470 ft from s li sec. Grayback Dev. Corp., Wichita Falls, W. T. Waggoner, 80, 11, S 40, MEP&P sur, 450 ft from w and 150 ft from s line. Harry Hines, Wichita Falls, W. T. Waggoner, 160, 1, S 49, B 4, H&TC sur, 150 ft from n and w lines of se¼ of sec. Dixie Oil Co., Inc., Wichita Falls, W. T. Waggoner, 80, C1, S 4, B 5, H&TC sur, 205 ft from n and e lines of w½ of se¼. Lewis Prod. Co., Dallas, W. T. Waggoner, A 80, 10, S 18, B 4, H&TC sur, 205 ft from n and w lines. Lewis Prod. Co., Dallas, W. T. Waggoner, B 120, 5, S 17, B 4, H&TC sur, 200 ft from n and 660 ft from e line; 6, 155 ft from n and e lines.

WINKLER COUNTY—Southern Crude Oil Purchasing Co., Fort Worth, T. G. Hendricks, 640, L2, S 15, B B12, 440 ft from n and 1320 ft from w li of sec. Shell Co. & Llano Oil Co., Dallas, W. F. Scarborough, 80, 7, S 2, B 27, 330 ft from s and w lines of ne¼ of nw¼.

WEBB COUNTY — Carolina, Texas O&G Co., Inc., Wilmington, Del., S. Benavides, 40, 8, S 683, B 12, 450 ft from w and 150 ft from s line. Jno. O. Hearn, Laredo, S. Benavides, 40, 2, S 694, se¼ of ne¼, 660 ft from n and e lines. O. W. Killam, Laredo, A. M. Bruni, 500, 11, S 3, M. Arispe sur, 2180 ft from nw and 255 ft from ne line.

WILSON COUNTY—Grayburg Oil Co., San Antonio, F. E. Tegler, 67, 1, C. N. Parrott sur, 150 ft from n and w lines.

YOUNG COUNTY—R. A. Barton, Olney, D. E. Logan, 60, 1, 407 TE&L sur, 150 ft from s and elines. J. D. Carpenter et al, Olney, W. A. Barrett, 56, 3, E. W. Sargent sur, 300 ft e of No. 1. Miller & Tucker, Graham, L. P. Ward, 37, 1, L. W. Ross sur, 150 ft from e and 450 ft from s line. Richardson & Dresser, Mineral Wells, F. M. Cullers, 40, 1, B 19, YCSL sur, 150 ft from s and e lines nw¼ of B 19. E. W. Walton, Graham, 80, 1, S. Sallee sur, 150 ft from n and w lines. Franklin Coombs & Rogers, Wichita Falls, L. Carpenter, 30, 2, E. W. Sargent sur, 150 ft from s and w lines; 3, 300 ft e of No. 2. Camp Oil & Gas Co., Wichita Falls, R. Campbell, 60, 1, 1484 TE&L sur, 150 ft from s and w lines. Cooper & Hill, Olney, J. A. Hankins, 110, 1, 401 TE&L sur, 150 ft from s and e lines. Panhandle Ref. Co., Wichita Falls, E. Brown, 35, 1, 290 TE&L sur, 150 ft from s and e lines. C. G. Smith, Bryson, G. Grubbs, 40, 1, 300 TE&L sur, 150 ft from n and w lines. Parks & Reed, Abilene, O. R. Carpenter, 50, 3 E. W. Sargent sur, 150 ft from s and e lines. W. R. Stafford, Graham, E. T. Farmam, 40, 1, 283 TE&L sur, 150 ft from n and w lines. W. L. Hawkins, Wichita Falls, J. C. Owen, 160, 4, BBB&C sur, 300 ft e of No. 1. Wooten & Reed et al, Graham, O. Andrew, 50, 1, 201 TE&L sur, 450 ft from n and e lines. A. H. Parks et al, Abilene, O. Carpenter, 50, 2, E. W. Sargent sur, 750 ft from w and 150 ft from s line. Panhandle Ref. Co., Wichita Falls, R. K. Pitman, 80, A2, J. T. Deister sur, 140 ft from w and 1820 ft from s li of sur. J. D. Carpenter, Olney, W. H. Barrett, 56, 4, W. Sargent sur, 300 ft e of No. 3. Rannell Oil Co., Oklahoma City, Okla., J. W. Jack, 80, 8B, S 23, YCSL sur, 870 ft form s and 770 ft from e li blk 23. A. H. Parks et al, Abilene, O. R. Carpenter, 50, 4, E. W. Sargent sur, 400 ft from s and w lines. J. A. Mintau, Wichita Falls, W. F. Bailey, 1, 165 TE&L sur, 150 ft from n and e lines. J. W. & Mabel Collier, Tipton, Okla., Collier, 160, 9, B 21, YCSL sur, 300 ft e of No. 5. Steed & Gaus, Wichita Falls, L. A. Snider, 40, 17, R. Wilson sur, 300 ft e and 300 ft s of No. 15. C. C. Williford, Jean, L. R. Drum, 20, 1, S. Tynes sur, 450 ft from e and 150 ft from s line. Mook-Texas Oil Co., Fort Worth, J. H. Davis, 25, 6, 1487 TE&L sur, 252 ft from w and 150 ft from n line.

ZAPATA COUNTY—South Texas Prod. Co., Laredo, J. D. Jennings, 5, C. Blanco sur, nw cor.

OKLAHOMA

BECKHAM COUNTY—Heiden et al, Montgomery 1, ne nw, 15-9n-23w.

COTTON COUNTY—Baldwin and Sultan, Rhone 2, sw nw se se, 35-1s-10w. Silurian, Chambers, se ne se nw, 2-2s-10w.

CREEK COUNTY—The Prairie, Roberts 3, owdd, se, 7-16-9e. Texas, Baker 2, se ne se, 14-17-10e. Hancock and Foster, Wildcar 1a, ne se nw, 14-17-11e. Carter, Curant 1, ne, 18-16-9e, owdd. Selby, Durant 7, ne se ne, 18-16-9e, (twin). S. P. Smith and Coffee, Maloney

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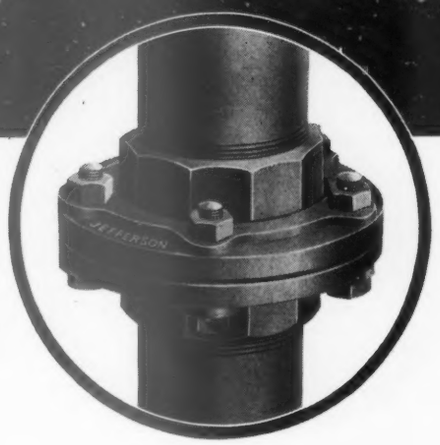

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KAY COUNTY—B. E. Holden, Hitch 1, c nw sw, 19-28-1e.

LINCOLN COUNTY—Blackwell, Harmon 1, se sw nw, 25-17-3e. Shell Pet., Furst 1, sw se, 25-17-3e. Flynn and Morgan, Johnson 1, sw ne, 1-16-5e.

LOGAN COUNTY—Shell, Storey 2, ne se sw, 30-19-4w. Shell, McCully 11, nw sw se, 30-19-4w. Shell, McCully 12, sw nw se, 30-19-4w.

MUSKOGEE COUNTY — Johnston et al, Foreman 1, se sw sw, 14-13-18e. John Aggas, Hawkins 1a, cwl nw se, 28-16-15e.

OKFUSKEE COUNTY—Prairie, Fier 1, se sw sw, 16-10-11e. Sunray, Johnson 1, nw ne, 30-12-9e. Grimes Gasoline Co., Buck 1a, se nw nw, 36-11-9e. Jarvis and Holm, Fier 2, sw se sw, 16-10-11e. W. L. Umburn et al, Yarhard 1, nw se nw, 21-10-11e. T. W. Atkins, Rhea 1, sw se ne, 14-10-9e.

OKLAHOMA COUNTY—Indian Territory Illuminating, Fortson-Conolidated 2, 14-11-3w. Mid Kansas Browning 1, sw nw, 18-11-2w.

OKMULGEE COUNTY—Marquette et al, Williams 6, nw ne ne, 22-13-12e, owdd.

OSAGE COUNTY—Prairie, 6, se sw sw, 30-25-8e. Winona, 12, ne se sw sw, 22-29-11e. Osage Gas Producers, 2, ne sw sw, 29-28-11e. Peters and Producers & Refiners 3, ne nw ne, 27-27-11e. Transconeinental 1, ne se ne, 11-26-10e. Harland, 86, nw sw se, 21-25-11e. Peters, 11, nw ne nw, 26-25-9e. Peters, 5, sw ne sw, 32-24-9e. A. G. Oliphant, 1, se nw nw, 26-23-9e. Peters et al, 1, se nw 28-21-11e.

PAWNEE COUNTY—J. L. Donahue, Cary 1a, sw ne sw, 22-23-4e. Peerless and Carter, Rigby 1, c se se, 17-20-9e.

POTTAWATOMIE COUNTY—Tidal et al, Mull 1, sw, 29-8-5e. Magnolia et al, Lynn 1, ne, 2-17-4e. Tidal et al, Sanders 1, se nw, 27-7-4e. Gypsy et al, Johnson 1, se ne nw, 7-7-4e. Simms, Laster 5, sw nw ne, 19-6-4e. Magnolia, Pugh 1, owdd, sw se se, 7-7-5e.

SEMINOLE COUNTY — Burke Greis & Darby, Varnum 1, se sw sw, 32-10-6e. Burke Greis & Darby, Varnum 2, 32-10-6e. W. J. Martin et al, Brown 1, nw sw sw, 23-8-5e. Sinclair, Harjo 4, nw se se, 11-8-5e. Independent et al, Harris 13, (twin), ne se nw, 23-7-6e. Empire, Smith 3, ne se ne, 8-8-5e. Empire, Charty 2, sw se nw, 24-7-6e. Magnolia, Reed 1a, (twin), nw ne sw, 13-5-7e. Carter, Shepherd 2, sw ne ne, 6-9-6e. Carter, Shepherd 1, ne, 6-9-6e. Pure, Cotcha 12, (twin), se nw ne, 23-7-6e. Carter, Cotcha 5, (twin), nw sw ne, 23-7-6e. WF. B. Pine, Harjo 1, ne nw, 31-7-6e.

STEPHENS COUNTY — Wirt Franklin, Green 1, nw sw nw, 9-2s-6w. Wirt Franklin, Bonner 1, nw se, 9-2s-6w. Magnolia, Martin 1, sw, 21-2s-4w. Murphy Fobb 17, "B", se nw sw, 12-2s-8w. Magnolia, Peck 7, ne sw se ne, 13-2s-8w. Pace et al, Bunch 1, se sw nw se, 21-2s-7w. George Pace et al, Enloe 1, ne nw sw se, 21-2s-7w. E. Parsons, Dilly 1, sw se sw, 22-2s-7w. Wirt Franklin, Brookes 1, se ne, 8-2s-6w. Lone Eagle, Simpson 9, se ne se, 34-1s-8w. Ellis Drlg Co., Nigh 6, ne se sw nw, 34-1s-8w.

WAGONER COUNTY—Fred Loesing, Mantooth 1a, nw sw ne, 16-18-16e, (twin).

KANSAS

BUTLER COUNTY — Empire, Hutchinson "C" 3, se ne nw, 34-27-5e. Empire, Hutchinson "A" 4, se nw ne, 34-27-5e. Empire, Willets 8, se ne sw, 22-27-5e. Alladin, Mathewson 1, nw sw ne 10-27-6e. Travis et al, Harrison 1, se, 21-25-3e. Robertson et al, Wilson 1, sw se, 15-25-4e.

ELK COUNTY—Texas, Brown 1, owdd, ne nw sw, 12-30-9e.

ELLIS COUNTY — Mid-West Exploration Co., Berens 1, se nw, 12-13-16w.

ELLSWORTH COUNTY—J. H. Tatlock et al, J. Hertzwig 1, c sw se, 25-17-9w.

GREENWOOD COUNTY—Phillips, Beal 2, nw ne ne, 28-23-11e. Empire and Rhodes, Norton 'AA" 3, se nw ne, 22-22-12e. McPherson Nixon 1, ne nw nw, 36-24-9e. West Coast Leasing Co., Souder 1, nw sw se, 5-26-13e.

KINGMAN COUNTY—D. P. Fleeger et al, Rayl 1, se ne ne nw, 21-27-7w.

McPHERSON COUNTY—Mid Kansas Oil and Gas Co., Voshell 1, ne nw ne, 9-21-3w.

RICE COUNTY — E. H. Langston et al, Shumway 1, c sw, 2-20-9w. McCullough et al, Williams 1, c ne, 35-20-8w. Derby, Johnson 1, nw ne se, 24-20-6w. Danciger et al, Bell 1, c sw, 16-19-8w.

RUSSELL COUNTY—Gilbreath et al, Mansfield 1, se ne sw, 16-12-13w.

SEDGEWICK COUNTY—D. P. Fleeger et al, Ottoway 1, sw nw, 16-28-2w. Shell, Jansen 1, nw sw, 27-26-2e. Shell, LaGrisse "B" 1, se nw sw, 15-26-2e. Shell, Brown 1, ne nw se sw, 15-26-2e. Kenny et al, Tripp 1, ne sw sw, 15-26-2e. Hays et al, Townlot 2, ne sw se sw, 15-26-2e. Deal et al, Elliott 1, se ne sw sw, 15-26-2e. M. Deal et al, Townlot 1, ne sw sw, 15-26-2e. Alladin, Benningfield 3, sw nw sw, 6-26-1e.

STAFFORD COUNTY—Gibson et al, Mueller 1, c sw, 11-23-14w.

TREGO COUNTY—Phillips, Stitz 1, se, 24-12-25w.

WOODSON COUNTY — J. K. Herndon, Batheel 1, nw se nw, 29-23-16e. Derby et al, Kenyon 1, ne se nw, 29-23-15e.

LOUISIANA

ARCADIA PARISH—The Texas Co., Shreveport, Rayne Hrs. 3, 40-9s-2w, 3625 ft southeasterly along n from nw c Sec. and 200 ft southwesterly at a right angle in Sec. 40.

CADDO PARISH—D.C.R. Oil Co., Inc. and Crystal Oil Refg. Co., Shreveport, W. P. & P. D. Oden 2, 20-19n-14w, 264 ft s and 792 ft w of ne c nw. Standish O. & R. Co., Boston, Mass., Allen 12, 23-22n-15w, 200 ft e and 330 ft n of sw c n½ ne sw. The Texas Co., Shreveport, Caddo Levee Board 70, 27-21n-16w, 700 ft e and 275 ft n of sw c se.

CALCASIEU PARISH—Gulf, Houston, Star Vincent 48, 34-10s-12w, Aprx. 1135 ft n and 1195 ft e of sw c of Sec.

CAMERON PARISH—Yount-Lee Oil Co., Beaumont, Texas, School Sec. 9, 16-12s-10w, 1355 ft w and 2660 ft n of se c of Sec.

LA FOURCHE PARISH—Texas Gulf Sulphur Co., Thibodaux, Mrs. W. H. Stark, et al 21, 72-15s-15e, 1875 ft s and 1550 ft w of ne c of Sec.

LA SALLE PARISH—Air Lift Oil Co., El Dorado, Ark., Missouri Pacific 2, 26-10n-1e, 320 ft n and 610 ft e of sw c se ne.

OUACHITA PARISH — Arkansas-Lopisiana Pipe Line Co., Shreveport, McEnery 2, 21-19n-4e, 221 ft n and 660 ft e of sw c nw. Magnolia Petroleum Co., Shreveport, Fee 401 2, 2-18n-3e, 660 ft s and 660 ft e of nw c of Sec. Pipes & Mack, Monroe, Chas. Schultz 2, 13-18n-4e, 2777 ft n and 306 ft w of se c sw.

RICHLAND PARISH—Hope Prod. Co., Monroe, F. N. Boykin 1, 21-17n-6e, 660 ft n and 660 ft e of sw c nw. Magnolia Petroleum Co., Shreveport, F. B. Sartor 1, 17-16n-6e, 533 ft n and 233 ft e of sw c se of nw.

ST. MARTIN PARISH—Bowie O. & G. Co., Inc., New Orleans, Begnaud 5, L 113, T 9s, R 5e, 210 ft s and 72 ft w of ne c lot 113.

WEBSTER PARISH—Frank E. Estes, Inc., Shreveport, Pardee No. 2, 3 22-n-11w, 50 ft e and 50 ft s of nw c ne nw.

COMPLETIONS

(Continued from page 82)

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Archer Drlg. Co., Staley 1	10	1602
Barnsdall Oil Co., Wilson 7-A	30	1712
L. G. Bradstreet et al, Pruett 1	*	750
Cullum & Prairie O&G Co., Falls Co. 1	25	1110
Humble O&R Co., Hamilton 21	*	1301
A. W. Johnson et al, Garvey 1	*	831
McCarty Oil Co., Wilson 1	15	1593
Moran Drlg. Co. et al, Bloodworth 2	50	1227
Perkins-Cullum et al, Andrews 1-A	15	1238
Petroleum Prod. Co. & Harry Hines, Richardson 1	*	1278
Pois & Schulz, Miller 5	*	1650
Prairie O&G Co., Richardson 28-B	10	1300
Shappell Oil Co., Lyles 2	45	1707
Underwood Drlg. Co. et al, Andrews 4	*	918
BURKBURNETT—		
Comac Drlg. Co., L. Morgan 2	3	1657
Goldsmith & Reno Oil Co., Roller 3	15	1239
COOKE COUNTY—		
Humble O&R Co., Fields-Bowers 2	210	1186
Kewanee O&G Co., R. J. Timmis 5-B	1600	1459
ELECTRA—		
Gulf Prod. Co., G. Jennings 9	*	2110
T. F. Hunter et al, Jenne 1	*	1349
Allen & Rayzor, Burnett 1	*	2000
L. G. Bradstreet et al, Waggoner 1-D	*	1917
Bullington-Lee et al, Jennings 3-C	10	1609
L. L. Donnell et al, Honaker 1	*	1230
Magnolia Pet. Co., T. J. Waggoner 1	*	3663
Ryan Consol. Pet. Corp., Nance 109	*	1822
C. P. Sheldon-Ven-Mex Oil Co., Whittenbach 1	30	1921
E. J. Stump & King Royalty Co., Waggoner Bros. 1	*	2003
JACK COUNTY—		
Buttram Pet. Corp., Boyd 1	120	2427
C. A. Fluety et al, Maxey 2	*	570
K-M-A AND IOWA PARK—		
Continental Oil Co., Dodson 1-A	*	1484
Mid-Continent Holding Corp., Rhoades 1	20	502
Rhoades 2	*	785
Rhoades 3	15	501
Rhoades 4	15	502
Wilkerson 1	20	503
Wilkerson 2	25	500
Wilkerson 3	10	498
Whittaker & Hamilton, Gardner 1	*	2003
L. G. Bradstreet et al, Denny 1	*	1802
King Royalty Co., Donehoo 18	3	1315
Riner & Bailey, Michie 6-B	*	1320
The Texas Co., Mangold 3	*	1900
MONTAGUE COUNTY—		
Bridwell Oil Co., Edmondson 4	60	1268
WILBARGER COUNTY—		
Baker et al, Waggoner 12-B	45	1895
Barkley & Meadows, Waggoner 2-B	200	2430
Waggoner 10-C	85	1894
C. P. Burton et al, Waggoner 1-M	*	2442
Carter et al, Waggoner 3	45	1997
Consolidated Oil Co., Waggoner 8-O	110	1874
Empire Gas & Fuel Co., Waggoner 13-B	200	2315
Waggoner 17-B	130	1857
W. T. Knight et al, Waggoner 5-A	110	1873
Lewis Prod. Co., Waggoner 3-B	100	2433
The Texas Co., Waggoner 364	*	2450
Waggoner 18-E	80	1876
YOUNG COUNTY—		
Archer Drlg. Co. et al, Logan 1	*	1302
Carpenter et al, Barrett 2	40	599
Panhandle Ref. Co., Brown 1	*	903
Parks et al, Carpenter 4	*	665
Simms Oil Co., Willis 2	*	4360
Stafford et al, Bentley 2	*	560
Paul Steed & Gaus, Snider 17	20	628
United Royalty Co. et al, Carpenter 1	25	614
Wise & Jackson, Calvin 10	8	655

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CRANE COUNTY—		
Gulf Prod. Co., J. T. McElroy 65	1485	2971
HOWARD COUNTY—		
The California Co., Roberts 7, Lse. 2	200	1880
Continental Oil Co., Chalk 5e	100	1790
Cosden Oil Co., Roberts 5-A	*	1511
Gulf Prod. Co., Clay 6	80	1880
Moody Corp. (Superior), Roberts 16-E	70	1430
Roberts 17-E	70	1414
JONES COUNTY—		
The Texas Co. & Cosden Oil Co., Camp 2	50	2533
PECOS COUNTY—		
The California Co. Smith 4, Lse. 1, (Sec. 21)	85	1410
Smith 4, Lse. 2, (Sec. 26)	65	1569
Doran & John McGee's Pecos Valley 1	20	1670
McMan O&G Co., Smith 6-C	20	1760
Shell Pet. Corp., Smith 10	135	1568
WINKLER COUNTY—		
Gulf Prod. Co., Clapp 1	5483/4	2637

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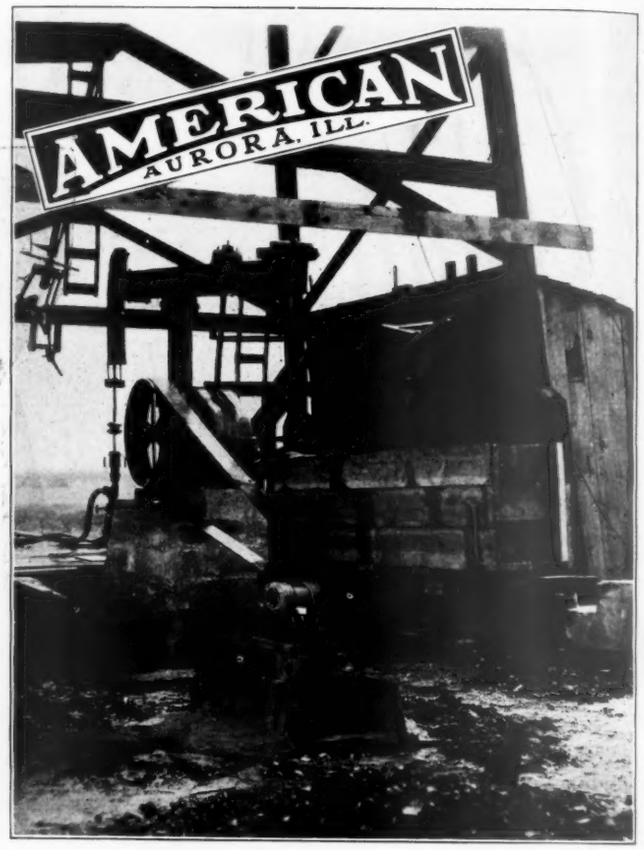

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WILDCATS FROM ALL SECTIONS

TEXAS
WEST TEXAS
Completions

Company, Well and Location		Initial Production Bbls.	Depth
LYNN COUNTY—			
Hart Oil Corp. & Geo. McCamey, Edwards 1		*	4500
MIDLAND COUNTY—			
Phillips Pet. Co., Stokes 1		*	4340
MITCHELL COUNTY—			
Westhyde Inv. Co., Ellwood 1		*	3216
PECOS COUNTY—			
Geo. B. Morgan et al, Toberg 1		†	290
WINKLER COUNTY—			
Texas-Canadian Oil Co. et al, Kloh 1		*	4008
YOAKUM COUNTY—			
Bert Weekly et al, Knight 1		*	4504

BORDEN COUNTY — Louisiana O&R Corp.'s J. S. York 1, lcn. W. A. Moncrief & Humble O&R Co.'s S. I. Munger 1, spudding. Teas-Gant et al's Long 1, set cas with hfw 1500 ft.

BREWSTER COUNTY—Ed. W. Bateman & Co.'s Nevill 1-A, dr 690 ft. Brewster Oil Co.'s Fee 1, fsh 1930 ft. E. L. Chapman et al's Skinner 2, dr 500 ft. J. P. Johnson & Bert Weekly's Jackson-Harmon 1, elev 3972 ft, dr lime 2364 ft.

COKE COUNTY — Ray McCamey et al's McCutchen 1, sd hfw 3500 ft. Mid-Kansas O&G Co.'s Lackey 1, elev 2152 ft, dr 3910 ft.

CONCHO COUNTY—Jones et al's Jones 1, fsh 1975 ft. A. W. Turner & Guardian Oil Co.'s Brosig 1, dr 315 ft.

CRANE COUNTY—Gulf Prod. Co.'s Waddell 7, re-set tubing, pb from 3610 to 3567 ft; Waddell 8, rig.

CROCKETT COUNTY—W. A. Moncrief's Andrews 1, (Sec. 57), dr sandy-lime 1290 ft; Todd 1, (Sec. 29), lcn. Taylor-Link Oil Co.'s Powell 3, dr 1435 ft.

CULBERSON COUNTY — Deep Rock Oil Co. & Grisham-Hunter Corp.'s Kloh 3, dr 410 ft. Hickey et al's Finley 1, elev 3916 ft, sd 2275 ft. Scott & Dittman's Miller 1, elev 4059 ft, sd 2735 ft. West Texas Oil & Explo. Co.'s McGeorge 1, crooked hole 620 ft.

ECTOR COUNTY—Penn Oil Co. & Humble's Kloh 1, rig.

EL PASO COUNTY—C. E. Sillix et al's Malone 1, sd 1035 ft.

FISHER COUNTY—Cranfill-Reynolds Co. & Sun Oil Co.'s Flanigan 1, elev 1708 ft, dr 2535 ft; Texas Cement 1, rig. Culbertson Bros. et al's Griffin 1, sd 2970 ft. Magnolia Pet. Co.'s Alice Lee 1, dr 2160 ft. Mid-Kansas & Phillips Pet. Co.'s Stephenson 1-A, dr 1285 ft. Mid-West Explo. Co.'s Steele 1, lcn. Henry Riley et al's Veatch 1, spudded and sd. Roeser-Pendleton & Amerada's Haught 1-A, dr 2580 ft. Roeser-Pendleton & Landreth's Johnson 1, dr 1335 ft. The Texas Co.'s Stephens 1-B, dr 1230 ft.

GARZA COUNTY — Emerald Oil Co.'s Bargsley 1, show oil 2455 ft, dr 2505 ft. Gulf Prod. Co.'s Street 1-D, elev 2505 ft, top salt 770 ft, ur cas with hfw 3760 ft. Paul Steed et al's J. M. Boren 1, dk. Thompson et al's F. Tuffing 1, rig.

GLASSCOCK COUNTY—A. & F. Oil Co.'s S. Turner 1, elev 2543 ft, top lime 2155 ft, swabbing water 2510 ft. California Co.'s W. B. Currie 3, lcn; E. F. Turner 1, fsh drill stem 1530 ft. Gibson-Johnson et al's Dean 1, elev 2718 ft, top salt 1075 ft, top lime 2560 ft, sd 3450 ft. Houston Oil Co. et al's McDowell 1, dr 2500 ft. Kirby Pet. Co. et al's Phillips 1, elev 2624 ft, top lime 2090 ft, fsh junk after shot 206 qts at 2160-2268 ft, swabbed 190 bbls 31.3° gravity oil six hours 2212-68 ft before shot. Landreth Prod. Corp. & Tidal Oil Co.'s Houston 1, lcn. Lion O&R Co.'s Coffee 1, dr 1230 ft. Mid-West Explo. Co.'s Edwards 1, dr 1725 ft. Penn Oil Co. et al's Shaffer 1, elev 2702 ft, dr 1325 ft. Sun Oil Co.'s Phillips 1, dk. Texas-State Oil Co.'s Edwards 1, elev 2425 ft, top salt 1300 ft, junked 2461 ft. World Oil Co.'s McDowell 2-C, elev 2543 ft, rig.

ABBREVIATIONS

NOTE—The following is the explanation of abreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

TOM GREEN COUNTY—Fitzgerald et al's Bennett 1, dd, co 1950 ft.

HOCKLEY COUNTY—World Oil Co.'s Ellwood 1, elev 3363 ft, top salt 2157 ft, dr 3165 ft.

HOWARD COUNTY—Fuhrman Pet. Corp. & W. A. Moncrief's Reed 1, elev 2446 ft, top salt 940 ft, top lime 2742 ft, dr 2830 ft. Meriwether Oil Co.'s Eva Smith 1, sd 430 ft.

HUDSPETH COUNTY — The California Co.'s University 1, elev 5833 ft, dr up 13-inch cas, td 1640 ft. Geo. E. Richardson et al's Thaxton 1, rig. Western States Oil Co.'s Gardner-Mosely 1, elev 5086 ft, sd 3155 ft; Moore 1, elev 5050 ft, sd 2760 ft.

IRION COUNTY—J. B. Crawford et al's Williams 1, spudded and sd. Carl Cromwell & Fuhrman Pet. Corp.'s Nutt 1, lcn. Hodges & Baker's F. Tankersley 1, sd 1300 ft. King-

F. Charles Shugart, St. Louis, representative, left and H. G. Texter, sales engineer, Tulsa office, with Spang, Chalfant & Company, Inc., on the job at Texon, Texas, where Big Lake Oil Company recently set 7810 feet of the company's new "Simancro," five-inch, 18-pound casing. The new "Simancro" is special alloy seamless steel made at the Etna, Sharpsburgh and Ambridge, Pennsylvania.

wood Oil Co.'s Sugg 1, elev 2334 ft, dr black shale 7626 ft. Pecos Valley Oil Co.'s Stock 2, fsh 1200 ft. F. E. Webb & Banner Oil Co.'s Nutt 2, dr 560 ft. P. H. Williams et al's Ashe 1, co 3525 ft.

JONES COUNTY—J. H. Adsit et al's Swenson 1, fsh 1441 ft. W. G. Clark et al's Miller 1, dr 2155 ft; Newman 1, dr 1965 ft. McGinley-Sigler Co.'s Whittemore 1, ur cas 2720 ft. Mid-Tex O&G Co.'s King 1, dr 510 ft. F. E. Shaheen et al's King 1, spudded and sd.

LOVING COUNTY — Lockhart & Co.'s Bower-Wells 2, top salt 725 ft, dr 3975 ft; Hazell 2, elev 2705 ft, fsh 3980 ft.

MENARD COUNTY—J. L. Duffy & Carl Cromwell's Winslow 1, elev 2141 ft, trace oil 2390 ft, dr 2410 ft.

MITCHELL COUNTY — Republic Prod. Co.'s Scott 1, dr 3280 ft. Simms Oil Co.'s Ellwood 1, elev 2237 ft, top lime 1215 ft, dr 4695 ft. Teas & Wheeler et al's Radford 1, dr with hfw 4095-4125 ft.

NOLAN COUNTY—L. G. Bradstreet et al's Kuteman 1, elev 2488 ft, dr hard blue lime 3674 ft. Phillips Pet. Co.'s Plunkett 1, dr 3565 ft.

PECOS COUNTY — Continental Oil Co.'s University 1-A, top salt 950 ft, sr 8-inch hole with hfw, td 1538 ft. Karl Crowley et al's Heiner 1, elev 2548 ft, sd 1302 ft. Cowboy Evans et al's Pecos Valley 1, fsh 950 ft. Gibson-Johnson et al's Grace 1, elev 2866 ft, top salt 890 ft, fsh 1715 ft. Independent O&G Co.'s Rayburn et al 1, elev 2459 ft, top salt 1089 ft, trace oil 1715 ft, sd hfw 1925-30 ft. Jayhawk Pet. Co.'s Price 1, spudded and sd. J. L. Kennedy et al's M. R. Kennedy 1, lcn. Sam Kitts et al's Sherbino 1, elev 2884 ft, top salt 975 ft, sd 1010 ft. Landreth Prod. Corp.'s University 1, bad hole 240 ft. Mauch & Krogen's Holmes 1, elev 2325 ft, top salt 535 ft, sd 1442 ft. W. A. Moncrief's Clarkson 1, (Sec. 84), lcn; Tippett 2, spudded and sd; University 1, (Sec. 27), elev 2694 ft, fsh 190 ft; University 1, (Sec. 13), elev 2560 ft, top salt 860 ft, cased off 15 million ft sweet gas 915 ft, top brown lime 1325 ft, making two million ft sulphur gas 1330-80 ft. R. E. Moore et al's Arnold 1, water trouble 920 ft. Geo. B. Morgan & Moncrief's Toberg 1, junked 290 ft, skid 15 ft n and dr 400 ft. J. D. O'Mara et al's Butz 1, elev 2513 ft, swab 40 bbls oil daily after shot, td 1377 ft; E. W. Bennett 1, fsh 440 ft; Streety 1, spudded and sd. S. B. Owens et al's J. Masterson 1, lcn. Pecos Crude Oil Pur. Co.'s Pecos Valley 3, fsh 635 ft. O. J. Perren et al's L. Peterson 1, dr 1130 ft. Phillips Pet. Co.'s Courtney-Pryor 1, elev 2951 ft, showing oil and water, dr 2410 ft; Courtney-Pryor 2, lcn abn; Southern Life Insurance 1, machine. Rowan & Tong, et al's McDonald 1, top salt 725 ft, dr 1260 ft. Mrs. M. M. Rowan et al's University 1, (Sec. 25, blk. 16), dr 200 ft. Schumaker et al's Williams 1, elev 2980 ft, sd hfw 1470 ft. Shell Pet. Corp.'s Jackson 1, set 12¼-inch cas 590 ft; University 1-B, dr 230 ft; University 1-C, rig. Shell & Kirby Pet. Co.'s University 1, dd, co 5204 ft. Talbot et al's Unsicker 1, machine. Taylor-Link Oil Co.'s University 2, top salt 850 ft, flowing oil by heads 925-30 ft, dr 1210 ft. Irvin Drlg. Co. & B. J. Spikes et al's Brown 1, elev 2387 ft, top salt 740 ft, sd 2258 ft. The Texas Co. & Phillips Pet. Co.'s Campbell 1, top salt 1010 ft, making 200,000 ft gas with 200 ft oih and fsh tools 1710-30 ft. Tidal Oil Co.'s University 1-B, (Sec. 3), dr 420 ft; University 1-C, (Sec. 17), dr 550 ft. Tower & McKanna, Inc.'s University 1, machine. Transcontinental Oil Co.'s University 1, elev 2552 ft, top lime 1035 and 3315 ft, dr 4340 ft. Trees Oil Co.'s J. C. Trees 2, rig. R. D. Webb et al's Fee 1-A, (Sec. 105, blk. "OW"), tested 6,100,000 ft gas, 165 lbs rock pressure, 1000 btu's, td 472 ft. Clayton Williams et al's Sanford 1, elev 2509 ft, sd hfw 1285 ft. World Oil Co.'s University 1, (Sec. 31), elev 2508 ft, rig; University 1-B, (Sec. 13), elev 2526 ft, dr 305 ft.

PRESIDIO COUNTY—Brite Prod. Co.'s L. C. Brite 4, sd 569 ft. C. E. Miller-Delmar Phillips Pet. Co.'s Tootle 1, dr 3610 ft. TP Coal & Oil Co.'s W. W. Bogel 1, spudding.

REAGAN COUNTY — Big Lake Oil Co.'s

University 131, dr shale and lime shell 7911 ft; University 151, dr hard sandy-lime 3550 ft; University 1-C, dr hard lime 3255 ft; University 2-C, dr 3408 ft.

REEVES COUNTY—Black & Fink (was Earl Hemby et al's) Brooks-Huling 1, fsh 260 ft. H. T. Hansford et al's Williams 1, spudded and sd. Southern Crude Oil Pur. Co.'s Kloh 1-A, elev 2784 ft, dr 985 ft. D. R. Thompson et al's Eddins 1, sd 5658 ft. Lee O. White et al's Mrs. Hershenson 1, elev 3244 ft, dr 1850 ft.

RUNNELS COUNTY—Herbert Oil Co. et al's Currie 1, ur 8-inch cas 2250 ft. Independent O&G Co.'s Rollwitz 1, ur 5-inch cas 4185 ft.

SCHLEICHER COUNTY — McKavitt Oil Co. & Cromwell's Tisdale 1, elev 2155 ft, sd 3475 ft. Phillips Pet. Co.'s Whitten 1, showing oil and water 4110-12 ft, dr 4360 ft. Underwood Oil Co.'s Tisdale 1, spudded and sd.

SCURRY COUNTY — Camp Springs O&R Co.'s Quinn 2, rig. Cottingham & Briscoe's Truss 1, set cas 310 ft. R. B. Pender et al's Davis 1, elev 2208 ft, top salt 445 ft, sd 3450 ft. Texas-Canadian Oil Co.'s Mooar 1, lcn.

SUTTON COUNTY — Phillips Pet. Co.'s Holman 1, elev 2277 ft, top lime 2317 ft, fsh 6633 ft. L. G. Priest et al's Allison 1, elev 2337 ft, sd 3250 ft.

TAYLOR COUNTY — J. B. Dunnigan & Shell Pet. Corp.'s Davidson 1, spudded and sd. J. B. Jameson et al's Webb 1, elev 1905 ft, dr 4775 ft. Magnolia Pet. Co.'s W. E. Hamner 1, dr 3010 ft. Mid-Continent Pet. Corp.'s Cody 1, dr 2015 ft. C. M. Root Drlg. Co.'s Martin 1, fsh 2475 ft.

TERRELL COUNTY—Big Bend Oil Corp.'s Bassett 1, dr gray lime 925 ft. Keck-Pecos Oil Trust's Hamilton 1, elev 1733 ft, sd 2550 ft. Mrs. J. B. McPhee et al's Sam Belt 1, sd 880 ft. Milham Corp.'s Bassett 1, elev 2270 ft, fsh 5245 ft.

UPTON COUNTY—Prairie O&G Co.'s McQuatters 1, spudding.

VAL VERDE COUNTY—Dyar Bros. et al's Wilson 1, elev 2115 ft, dr 3030 ft. Producers Oil Co. et al's Everett 1, sd 2510 ft. Valvert Oil Corp.'s Bassett 1-A, elev 2069 ft, dr 3895 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Boogher 1, dr 275 ft. Atlantic & Delmar's S. F. Hayzlett 3, elev 2523 ft, top salt 725 ft, flowed 35 bbls first 24 hrs after shot 140 qts at 2466-2500 ft. Continental Oil Co.'s Sealy 2-A, spudding. C. C. Dorr et al's Costley 1, lcn. Gulf Prod. Co.'s Hutchings Assn. 2, elev 2655 ft, top salt 1240 ft, top brown lime 2250 ft, testing new show oil 2668-69 ft, td 2679 ft; O'Brien 6, top salt 1068 ft, dr 1370 ft; Wristen Bros. 1, top salt 720 ft, swab and flow 122 bbls oil after shot 2410-80 ft; Wristen 2, top salt 705 ft, dr 2355 ft. Penna Oil Co. & Atlantic's Bennett 1-A, elev 2571 ft, dr 1055 ft. Shipley Oil Corp.'s Hayzlett 2, elev 2504 ft, top salt 795 ft, swab 140 bbls oil after shot 140 qts 2430-85 ft; Lee Monroe 1, fsh 220 ft. Tex-Oil Prod. Co.'s Redman 1-A, fsh 710 ft.

WINKLER COUNTY—V. T. Bolin & Co.'s Brown 2, top salt 1300 ft, top lime 2415 ft, sd 2420 ft. Continental Oil Co.'s Morton 1-A, top lime 2627 ft, set cas 2638 ft. Liner Drlg. Co. et al's Campbell 1, dr 1115 ft. Shell & Llano Oil Co.'s Scarborough 7, dr 315 ft.

TEXAS GULF COAST

BRAZORIA COUNTY—Empire's Brock 3, Stratton Ridge, dr 4910 ft shale. Thos. Faust et al's Fee 4, 2 mi s Nash Dome, dr 1600 ft shale.

CHAMBERS COUNTY — Pure Oil Co.'s Mayes 2, Lost Lake, completed flowing 200 bbls daily of 23 gravity oil at 2782 ft; Mayes 3, pulling screen 2152 ft; Mayes 4, Lost Lake, dk. Layne et al's Fitzgerald 1, 1 mi s Barbers Hill, sd 2635 ft.

COLORADO COUNTY — Merrett et al's Zverck 1, 2 mi e Ellinger, sd 1011 ft. Rich Oil Corp.'s Von Rosenberg 2, 2½ mi w Alleyton, sd 2790 ft.

FAYETTE COUNTY—Kelley et al's Burke 1, 2 mi nw Flatonia, sd 500 ft. Moore et al's Kerr 1, Muldoon, sd 2485 ft. Magnolia's Gully 1, 4 mi n Fayetteville, dr 2135 ft gbo. National Oil Co.'s Hunger 1, 8 mi sw La Grange, dr 750 ft gbo. Muldoon Oil Co.'s Kimper 1, Muldoon, dr 220 ft shale.

FORT BEND COUNTY—Humble's Miller 1, 3½ mi w Rosenberg, dr 5025 ft shale and lime. Gulf's Trone 12, Long Point, dr 3235 ft sand and lime; Wolfe 16, Long Point, abn 675 ft. Grayburg Oil Co.'s Ransom 1, s Richmond, dr 2432 ft gbo.

GOLIAD COUNTY—Humble's Miller 1, 4 mi n Goliad, dr 200 ft. Mission Drilling Co.'s Ray 3, Pettus, dr 2763 ft shale and lime.

HARRIS COUNTY—Humble's Simms-Smith 75, Goose Creek, fsh 5243 ft; Irvin 2, Mykawa, dr 4000 ft sand and shale; Woodburn 1, 2 mi s Genoa, dr 4290 ft shale; Warren 6, Hockley, lcn. York & Robertson, Garrett 1, 5 mi se Fauna, sd 1600 ft. Rich et al's Highland Farms 1, Elena, dk.

JEFFERSON COUNTY — Deep Test Oil Corp.'s McFaddin 1, 1¼ mi e Spindle Top, sd 3960 ft. River Oil Co.'s Ship Channel Ld. Co. 1, 2 mi se Beaumont, dr 1805 ft gbo. Gulf's Burrell 3, Fannett, dr 2510 ft rock; Junker 1, Fannett, lcn. Westbury Oil Co.'s West 3, dr 2325 ft gbo and lime. Bleakie Oil Co.'s Tollivar 1, 2½ mi nw Voth, sd 2750 ft. Vacuum Oil Co.'s Broussard 1, 9 mi se Fannett, set 13 3/8-inch cas at 1055 ft. Shell's Heisig 1, 2 mi n Hamshire, dr 6120 ft shale. The Texas Co.'s Pipkin 2, Big Hill, dr 1320 ft shale; Burrell 1, Fannett district, lcn.

LIBERTY COUNTY—Humble's Sterling 5, Moss Bluff, dr 4520 ft shale. Pure's Liberty Investment 1, Moss Bluff, dr 3220 ft gbo and lime. Gulf's Boyt 2, Hankamer, dr 2910 ft. Fort Bend Oil Co.'s Bladerack 1, N. Dayton, sd 4625 ft. Sun Oil Co.'s Kovaleik 2, N. Dayton, abn at 5460 ft cap rock. Harrison Oil Co.'s Quintette 4, N. Dayton, dr 3763 ft sand and shale. Harvey Smith's Moore's Bluff Corp. 1, 4 mi s Stilson, dr 2990 ft sandy shale. Union Explo. Co.'s Esperson 3, 4 mi s Stilson, ru.

MATAGORDA COUNTY—Crossland et al's Hawkins 1, Shepherd's Mott, sd 4850 ft.

ORANGE COUNTY—The Texas Co.'s Stark 1, Pt. Neches, dr 675 ft sand; Polk 1, Pt. Neches, dk.

VICTORIA COUNTY—Humble's Welder 1, 3 mi se Nursery, dr 3900 ft.

WALLER COUNTY — Kirby Pet. Co.'s Vaughn 1, San Felipe, prep to dd from 3005 ft.

WASHINGTON COUNTY—Thomas et al's Giddings 1, 4 mi e Brenham, dr 3050 ft gbo. Fuchs et al's Torn 1, 14 mi sw Brenham, dr 1100 ft. W. D. Anderson et al's Rubenstein 1, 4 mi se Gay Hill, sd 1825 ft. Brains et al's L. S. Smith 1, 4½ mi ne Gay Hill, dr 950 ft shale. Kellet et al's Carter 1, sd 1500 ft. Dekle et al's Calhoun 1, 4 mi e Quarry, sd 1250 ft. Cullen & West's McDade 1, Chapel Hill, dr 3500 ft shale. W. Gahee et al's Davis 1, sd 50 ft.

WHARTON COUNTY — Hearte Oil Co.'s Brown 1, 5 mi s El Campo, dr 2810 ft gbo.

SOUTHWEST TEXAS

Completions

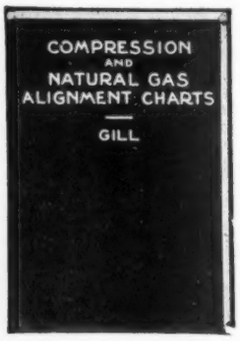
Company, Well and Location	Initial Production Bbls.	Depth
BASTROP COUNTY—		
Gypsy Prod. Co., Lottman 1, e Bastrop	*	3025
CALDWELL COUNTY—		
Anderson et al, J. P. Horner 1, 1 mi s Lockhart	*	2020
Detex Oil Co., Keefer 1, 3½ mi w Luling	*	2775
Buchanan et al, Jeffry 1, 2 mi se Dale	100	2050
Germany et al, Douchy 1, Fentress	*	1745
GUADALUPE COUNTY—		
Miller Bros., T. A. Springs 1, 5 mi s Seguin	*	2650

BASTROP COUNTY — Gypsy Prod. Co.'s Lottman 1, e Bastrop, abn at 3025 ft. Howell et al's Weckham 1, 2 mi s Paige, fsh 1710 ft. Nelson et al's Rundas 1, 7 mi s Smithville, dr 1800 ft. Harper et al's Mitchell 1, Bastrop, ru. Pacific Oil Co.'s Spooner 1, 4 mi ne Cedar Creek, dr 1410 ft shale; Donnell 1, 10 mi w Bastrop, dk.

CALDWELL COUNTY — Anderson et al's J. P. Horner 1, 1 mi s Lockhart, abn at 2020 ft in Edwards lime. Detex Oil Co.'s Keefer 1, 3½ mi w Luling, abn in Edwards lime at 2775 ft. Radcliff et al's Joe Cardwell 1, 4 mi n Lockhart, ru. Buchanan et al's Jeffry 1, 2 mi se Dale, completed for 100 bbls at 2050 ft. Callahan et al's Ellison 1, 3 mi n Luling, dr 2175 ft shale. Germany et al's Douchy 1, Fentress, abn at 2060 ft in Edwards lime.

DUVAL COUNTY—The Texas Co.'s Hyatt 1, Sweeden Garden subdiv., dr 2325 ft gbo.

GONZALES COUNTY—Greene et al's Dix 1, 1 mi n Bellmont, dr 1425 ft lime. Fort Bend



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Shreveport, Louisiana

Oil Co.'s Hamm 1, 2½ mi e Harwood, dr 2670 ft sand. Hoffman et al's Barrar 1, 8 mi ne Waelder, dr 500 ft shale.

GUADALUPE COUNTY—Miller Bros.' T. A. Springs 1, 5 mi s Seguin, sd 2650 ft. Sinclair's Tewes 1, 1 mi n New Berlin, dr 1675 ft shale. The Texas Co.'s Dallas Wilson 2, Darst Creek, dk; Lemmie Anderson 1, Darst Creek, dr 2353 ft chalk; Lemmie Anderson 2, Darst Creek, sd; Lemmie Anderson 3, Darst Creek, ru and sd. Gulf's Cercy Anderson 1, Darst Creek, lcn; Tadlock 1, Darst Creek, lcn. Bob Penn's Manford 1, 5 mi nw Darst Creek producer, ru; Bob Penn's Guadalupe River Bed 1, Darst Creek, lcn. Miles & Adams' Zaborski 1, 5 mi sw Darst Creek sp.

MAVERICK COUNTY—Rycade Oil Corp.'s Chittim 3, 20 mi e Eagle Pass, dr 5100 ft lime; Chittim 4, 20 mi e Eagle Pass, dr 4450 ft lime; Sullivan 4, 20 mi e Eagle Pass, dr 4220 ft. The Texas Co.'s Bandera County Land 1, 15 mi e Eagle Pass, dr 120 ft.

SOUTH LOUISIANA

ACADIA PARISH — Yount-Lee Oil Co.'s Houssiere-Latrielle 7, Evangeline, dr 4000 ft sand and shale; Crowley O. & M. Co. 4, Evangeline, stdg at 7563 ft; Crowley O. & M. Co. 5, Evangeline, lcn.

ASCENSION PARISH—Gulf's United Lds. Co. 15, Sorrento, set cas at 1900 ft. Triumph Oil Corp.'s Lacey et al 2, 3 mi se Sorrento twnste, 3200 ft. Big Dome Drlg. Co. & J. S. Kimbrough's Rearwood 1, Darrow, td 4760 ft. Pickard & Geisman's Desire Breaux 1, Sec. 32-10s-2e, sd 3780 ft.

CALCASIEU PARISH—J. O. Davis, Mimms 1, Lake Charles, dr 5600 ft. Wilfred Lahay's James 2, sd 3375 ft, sd 3380 ft.

CAMERON PARISH—The Texas Co.'s Calcasieu Lake B-5, E. Hackberry, dr 1500 ft; Calcasieu Lake A-4, lcn. Pure Oil Co.'s Yount-Lee 7, Sweet Lake, dr 5953 ft shale and shell; Yount-Lee 8, Sweet Lake, sd 5657 ft. Shell's Watkins 11, Black Bayou, dr 1000 ft; Watkins 12, Black Bayou, ru; Marceaux 1, Mallard Bay, lcn.

IBERIA PARISH—Gulf's State Z-10, Loreauville, dr 850 ft shale. Jefferson Lake Oil Oil Co.'s Peigneur 2, lcn.

IBERVILLE PARISH—Shell's Wilbert 3, White Castle, will dd from 5625 ft. Standard of La.'s Wilbert 3, Bayou Blue, ru; Schwing 2, Bayou Blue, dr 880 ft gbo; Schwing 3, Bayou Blue, capped piling.

LA FOURCHE PARISH—Gulf's Stark 14, Thibodaux, dr 935 ft; Stark 18, Thibodaux, dr 1275 ft gyp; Stark 23, Thibodaux, dr 220 ft sand.

PLAQUEMINES PARISH—Gulf's Morris & Rose 1, Spanish Pass, dk. The Texas Co.'s Garden Island Bay 2, ru. Humble's State Land 1, Lake Grande Ecaille dome, lcn; Lake Washington 1, Lake Grande Ecaille dome, lcn.

ST. LANDRY PARISH—The Texas Co.'s Botney Bay Lbr. Co. Fee 2, Port Barre, completed for 1100 bbls at 3620 ft.

ST. MARTIN PARISH—The Texas Co.'s St. Martin Ld. Co. Fee 1, Hager dome, dr 2650 ft gbo; St. Martin Ld. Co. Fee 2, Hager Dome, moving in. Yount-Lee Oil Co.'s La. Pet. Co. 5, Anse la Butte, dr 3725 ft.

ST. MARY PARISH — Freeport Sulphur Co.'s Belle Isle 1, dr 1450 ft lime; Belle Isle 2, dr 825 ft lime.

ST. TAMMANY PARISH — St. Tammany Pet. Corp.'s Fritchie 2, dr 2295 ft rock.

TANGIPAHOA PARISH—Joan Dev. Co.'s Lake Superior 1, dr 3315 ft sand. Completion Oil Co.'s Amos 1, dr 1900 ft gbo.

TERREBONNE PARISH—The Texas Co.'s Taylor Bayou B-1, moving in. Bay Coon Road B-2, dk; Bay Coon Road B-3, lcn; Lake Barre A-2, ru; Timbalier Bay A-1, cored anhydrite at 2975 ft; Dog Lake Bayou B-1, lcn; Dog Lake Bayou B-2, lcn.

MOUNTAIN STATES

COLORADO

ADAMS—N. M. Slatt, Hills 1, se 27-3s-64w, dr.

ARCHULETA—Juanita Oil Co., Harvey 1, sw 4-32n-3w, stand 725 ft.

BENT—Marland Oil Co., Pipe Springs 1, se 27-29-42, dr 4585 ft.

DOLORES—Transcontinental, Glade 1, nw 30-41-16, fsh 4005 ft.

ELBERT—Belmont Oil Co., Maher 1, sw 4-6s-59w, dr 3540 ft.

JACKSON—Midwest, Rich 21X, nw 9-6-8, dr 1385 ft. P. & R., Henderson 1, 2-6-81, dr 2120 ft.

JEFFERSON—Ruby Hill O&G Co., Braden 1, se 14-4s-69w, run 6¼-inch 3280 ft. and dr ahead.

LAS ANIMAS — Parker Club and Kinney-Coastal, 4-28-68, sd 3016 ft.

LARIMER — Barrows et al., 7-11s-68w, sd 2000 ft. 5-Square O&G Co., State 1A, sw 16-4n-69w, sd.

LA PLATA—Royal P. & R. Red Mesa 1, 27-33-12, dr 860 ft. Detroit Oil Assn., Olbert 1, sw 9-35-12w, dr 1863 ft.

LINCOLN—Kelly Oil Co., State 1, ne 36-14-57, dr 2450 ft.

MESA—High Line Oil Co., Hoel 1, ne 23-8s-104, prep to resume 2717 ft.

MOFFAT—McLaughlin et al., Wms. 1, 2-3-91, dr 3995 ft. McCormick et al., Sales 1, se 28-4n-92, dr 2685 ft. Vermillion Oil & Gas Synd., 1. se 23-9n-100w, mvg in.

MONTROSE—Uncompaghre O&G Co., Title & Trust 1, 27-50-10, dr 2070 ft.

PUEBLO—Beulah Dome Oil Co., Hedland 1, sw 72-23-57, dr 385 ft. Boone O&G Co., Ritter 1, nw 33-18-60, fsh 3037 ft.

RIO BLANCO—White Eagle, Fordham 1A, sw 9-2-96, dr 1965 ft. Texas Prod. Co., Potter 1, sw 30-2n-96w, dr 315 ft.

ROUTT—Midwest, 10, nw 4-7-86, dr 920 ft.

YUMA—Major Pete, Black Wolf LA, sw 7-2-43, carry 12½-inch at 1400 ft. Phillips, Andrews 1, nw 3-2-42, dr 2745 ft.

WELD—Platte Valley Pete Corp., Patterson 1, sw 23-8n-61w, sd 4400 ft.

WYOMING

BIG HORN—P. & R. 3, 24-56-98, bail mud 3759 ft. Ohio Oil Co., Faston 1, 36-56-97, dr 2553 ft. Cody Pete, Wilcox 1, 27-57-96, sd 1320 ft.

CARBON—P. & R., Hatfield 3, 2-19-88, sd 4003 ft. C. E. Bivins et al, Baggs 1, 35-13-92, resume. P. & R., Grenville 2, 28-21-86, dr 180 ft.

CONVERSE—Criterion Oil Co., ne 5-31-70, dr 3300 ft last report.

FREMONT—P. & R., Muskrat 2, 8-33-91, mvg in diamond outfit. Kinney-Coastal, 22-3-1, dr 3014 ft. Texas Prod. Co., State 1, 36-34-95, fsh bit 675 ft.

HOT SPRINGS—Texas Prod. Co., sw 23-45n-100w, dr 3300 ft. Midwest, 8, 6-44-98, cem 20-inch at 78 ft.

LINCOLN—Midwest, Waterfall 1, 35-22-115, dr 3920 ft. Midwest, Grey's River 1, 25-37-117, dr 1294 ft.

NATRONA—Prairie O&G Co., Baird 1, 22-31-81, dr 2400 ft.

PARK—P. & R., Pitchfork 1, 14-48-102, ur to td 1510 ft. Midwest, Rosenburg 36, nw 25-95-98, strmmg 2887 ft. Rosenburg 1, 26-58-98, co, td 1270 ft. Ohio, Burlington 1, 21-53-101, dr 600 ft.

SWEETWATER — Mtn. Fuel Supply Co., Tucker 1, 18-13-99, sd 2580 ft. Mtn. Fuel Supply. Humphreys 1, 2-12-101, cave cem 4033 ft. Mtn. Fuel Supply, Otto Arnold 1, 24-19-104, will deepen. Mtn. Fuel Supply Co., Newberger 1, 13-12-101, dr 1930 ft. Vermillion Oil Co., sw 16-12-100, prep to resume 620 ft.

UINTA—California Co., U. P. 1, 7-17n-119w, dr 3310 ft. Park City Oil Co., Christensen 1, 6-15n-113w, stand 1060 ft, wait casing.

WESTON—Wyo. Drlg. Synd., 15-44-64, dr 5000 ft. Gose Synd., 28-47-64, pull 4¾-inch 4855 ft. Fiddler Creek Synd., 11-45-64, cave at 950 ft.

MONTANA

BALINE—Midwest, 6, se 35-32n-19e, lcn. Midwest, 1, 34-32-193, lcn.

BROADWATER—Signal Hill O&G Co., nw 7-3n-1e, abn.

CARBON—Ohio Oil Co., Northern Pacific 2, 11-7s-21e, dr 2980 ft.

CARTER—Montasota Oil Co., Zimmerman 1, 7-8s-58w, dr 730 ft.

CASCADE—Lone Star, 13-21-3e, fighting cave 845 ft.

FERGUS—Melton Corporation, sw 24-21n-17e, fsh 2700 ft.

GALLATIN—California Co., Ringling 1, 35-5n-7e, dr 1370 ft.

GLACIER—Jos. Drumheller et al., Yunck 1, nw 1-34-6w, dr 2450 ft.

HILL—Jones Oil Co., Brown's Coulee 1, nw 32-34-14e, dr 1250 ft.

LIBERTY—Sunburst O&R Co., Bear's Den 1, nw 17-36-6e, pumped 39 bbls at 2410 ft. Western Nat. Gas Co., Townsend 2, 22-37-4e, dr 1710 ft. Cypress Oil Co., 36-28-6e, try so water.

LAKE—Missoula-Flathead Oil Pools Co., nw 31-21-20, making repairs.

PETROLEUM — Minnesota-Faltwillow Oil Co., 1, sw 5-12-25e, water trouble at 1298 ft, will deepen.

PHILLIPS—Big Dome O&G Co., Bloomberg 1, ne 1-32n-32e, run cas 2455 ft.

PONDERA—Miller Bros., Bruins 1, ne 17-28-1w, rig. Adams Co., Trustee, sw 29-29-1w, dr 1400 ft. Midwest, 36, se 12-13s-16w, lcn. Hammond et al., Katen 1, 24-26-1w, dr 600 ft.

RICHLAND—D. J. Carter, 11-22n-59e, mvg in.

SWEETGRASS—H. F. Stewart, 5-2n-22e, ream 3208 ft. Carter, Six Shooter, 17-3n-19e, spdg.

TETON — Texas Pacific Coal & Oil Co., Campbell-State 1, se 10-27-4w, sulphur water at 2434 ft. Ohio Oil Co., State 1, nw 16-24-2, dr 1600 ft. L. B. O'Neil, 16-25-5w, dr 600 ft. Texas Prod. Co., nw 21-26-4w, spd.

TOOLE—Monalta Oil Co., Ltd., Buckley 1, se 1-37-4w, sd. Anaconda Pete Co., ne 19-36-2e, lost hole, skid rig, spudded. Mahan et al, Lee 1, 10-31-1w, dr 2150 ft. International Royalty Holding Co., se 21-35-1e, dr 250 ft. Vashti Pete Co., sw 17-33-1e, spudded.

NEW MEXICO

CHAVES—Warman et al., 1, sw 23-13-24, sd. Transcontinental, Robbins 1, 1-14s-28e, dr 4155 ft.

DE BACA—Matador Oil Co., State 1, sw 6s-4n-20e, dr 2450 ft. Pittsburg Oil Co., 1, ne 16-1s-27e, sd 4506 ft. Transcontinental, McWhorter 1, 6-35-22e, dr 4460 ft.

GUADALUPE—Hanchett Oil Co., 2, 14-8n-24e, tools lost, sd 2403 ft, will prob abn.

LEA—Midwest, Leech 24, nw 15-19-38, dr 500 ft. Midwest, aLne 31, sw 28-19-30, dr 2040 ft. Midwest, Capps 31, sw 3-19-38, dr 4025 ft. Midwest, Gregory 22, sw 31-25-37, deepening with rotary. Gypsy Oil Co., Mattern 1, 24-21-36, sdtr lost tools 3580 ft. Gypsy Oil Co., Humphreys 1, sw 25-24-36, show oil at 3375 ft. Exploration Co., Record 1, 26-19-35, hd 4556 ft. Texas, Moberly 1, se 17-26-37, sd 3542 ft. Texas, Humphreys 1, sw 18-20-32, sd 3105 ft. Cranfill & Reynolds, Meyer 1, sw 22-24-36, temporarily completed. Cranfill & Reynolds, State 1, se¼ sec 2-21-33, dr 2730 ft. Empire G&F Co., Closson 1, se 6-22-36, gas 3560 ft. Vacuum Oil Co., 1, 14-17-34, show oil and gas at 4860 ft. Pueblo Oil Co., Lee 1, ne 34-17-29, dr 1100 ft. Ohio Oil Co., State 1, 9-13-38, dr 425 ft. Ohio Oil Co., McGeorge 1, ne 30-20-33, dr 2000 ft. Empire-Henderson et al., Martin 1, ne 28-20s-33e, stand 3905 ft. Buell & Hagen, State 1, ne 13-11s-35e, dr 1800 ft. Marland, Myers 1, sw 17-21s-36e, dr 935 ft. Marland, Meyer 1, nw 28-22s-36e, ready to spud. Marland, Flint 1, se 29-20s-34e, dr 3530 ft. Marland, McCallister 1, se 24-26-36, dr 3100 ft. Marland, Wells 1, ne 11-25-36, dr 2510 ft. Shell Pete Corp., Terry 1, ne 22-19-38, install rotary. Humble O&R Co., Lindley 1, 23-25-36, 1000 bbls at 3375 ft. Humble O&R Co., Bowers 1, 30-15-38, dr 2580 ft. Cook et al., State 1, ne 12-21-33, dr 1250 ft. Rector Oil Co., King 1, sw 27-25s-32e, dr 2810 ft. Walker et al, Terry 1, se 10-19s-38e, dr. Texas Pacific Coal & Oil Co., State 2, sw 21-22-36, dr 1200 ft. Magnolia Pete Co., Lindley 1, ne 26-25-36e, dr 410 ft. Maljamar O&G Corp., Bais 2, ne 21-17-3e, dr 265 ft.

McKINLEY—J. W. Halsell, Santa Fe 1, 17-19-9, oil show 2238 ft. San Juan Coal & Oil Co., 1, se 27-18n-9w, to run 5 3/16-inch at 2110 ft. Williams et al, ATSF 1, sw 19-18n-8w, dr 860 ft.

ROOSEVELT—J. T. Keegan et al, Pepper 1, 6-1s-36e, ready to spud. Smith & Sloan, Lovern 1, se 4-3s-35, to run 8¼-inch at 3765 ft.

RIO ARRIBA—Berringer et al, Hartman 1, ne 8-29-7, dr 735 ft.

SAN JUAN—Dorothy Oil Co., 29-30-9, dr 800 ft. Kutz Canon O&G Co., Day 1, 20-22-10, dr 900 ft. Blackrock Oil Co., 1, sw 11-25-13, sd 1550 ft. Angel Peak Oil Co., Kutz Canon 1, 11-28n-11w, fsh bailer, gasing 3100 ft. Greathouse et al, Roderick 1, sw 11-22-14, prep to run 6⅝-inch casing to shut off water at 700 ft. Childers Dr. & Pr. Co., Westwater 2, nw 34-31-18, lower 6⅝-inch cas. Reserve Oil Co., Shaffer 2, ne 1-21-14, dr 560 ft.

SAN MIGUEL—Pioneer O&G Co., Thunder-

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bird 1, nw 14-15-16, dr 1970 ft. Starr Oil Co., Adams 1, ne 25-17-16, dr 1960 ft.

SOCORRO—Arnold et al, 2, ne 13-6-1, sd 1975 ft.

TORRANCE — Bluhall O&G Co., 20-6-10, stand 1800 ft. Sinnock et al., Kutchin 1, ne 13-7-7, td 197 ft, crooked hole. Williams et al, Staplin 1, ne 16-8n-10w, dr 130 ft.

VALENCIA—Rio Puerco Oil Co., N. M.-Ariz. Land Co., 2, nw 13-6-2, wait pipe 3145 ft water shortage. Acme Oil Co., N. M.-Ariz. Land Co., 1, 26-6-3, ur at 3915 ft.

NORTHERN CALIFORNIA

Completions

Company, Well and Location		Initial Production Bbls.	Depth
SANTA BARBARA COUNTY—			
Petroleum Securities Co., Pomatto 1	*		2826
KERN COUNTY—			
The Ohio Oil Co., No. 23, 20-28-21	*		5008

KERN COUNTY

BAKERSFIELD—Taft Well Drilling Co.'s Delfino 1, 2-30-27, dr sandy shale 4135 ft.

BELRIDGE—Calkern Oil Co.'s 1, 18-28-22, lcn. Ozena Oil Co.'s 2, 27-29-21, dr shale and sand 678 ft. Ventura-Pacific Oil Co.'s 1, 18-29-22, fsh cmt 3375 ft.

BUTTONWILLOW — Milham Exploration's Kern 6, 18¼-inch cas cmt 2350 ft; Crites 1, testing cas, td 2670 ft. Richfield's Redding 1, 36-27-23, testing water shutoff 7618 ft.

GOULD HILLS—Elmer Oil Co.'s 1, 2-29-20, dr hard sand and shale 3466 ft. J. H. Kennedy's 1, 5-29-21, sd 505 ft. K. C. Wallace's 1, 32-29-21, dr brown shale 1600 ft.

KERN RIVER—Gatton and Gould's 1, re-cmt 8¼-inch cas 1185 ft, td 1450 ft.

LERDO—Shell's An-1, 5-29-27, 8⅝-inch cas cmt 4162 ft, td 4190 ft.

McFARLAND—General Pet. Corp.'s KCL-1, 25-26-55, dr brown shale 5850 ft.

ROSEDALE—Elmer Oil Co.'s Houghton 1, 33-29-26, dr sandy shale 3763 ft.

SHALE HILLS—Day Oil Co.'s 1-A, dr brown shale 1163 ft.

SAN EMIDIO—Union's K. C. L. 2, 5-10-21, sd 3675 ft.

TEMBLOR HILLS—Union's W. P. 1, 27-32-23, 8⅝-inch cas cmt 2110 ft, td 4960 ft; Williams 1, sr 2525 ft.

SANTA BARBARA COUNTY

BETTERAVIA—Shell's U. S. A-5, coring 1515 ft.

BUELL—Union's Buell 1, drilling 1600 ft.

CARPENTERIA—Continental's Kitty Baillard 1, dr 4528 ft.

CASMALIA—Keystone Oil Co.'s 1, 33-10-34, dr sand and shale 776 ft. Dome Oil Co.'s Donovan 1, 20-10-35, dr shale 1175 ft.

GOLETA—Barnsdall's Edwards 3, 13 3/8 cmt 735 ft. General Petroleum's More 1, 21-4-28, dr gray sand 4525 ft. Petroleum Securities' Bishop 1, dr shale 3775 ft.

LOS ALAMOS—L. B. O'Neil's Orena 1, dr shaley sand 1929 ft.

NAPLES—Pacific Western's Wiley Ranch 1, 7-4-29, dr sand and shale 3600 ft.

ORELLA—Shell's Rutherford 1, cornig 5151 ft.

POINT ARGUELLO—Standard's Sudden 1, dr 200 ft, sp 7-28-29.

POINT CONCEPCION — Western Gulf's Hollister 1, 8⅝-inch cas cmt 3152 ft, td 3172 ft.

SANTA BARBARA—Pacific Western's Gibraltar Dam 1, 9-5-27, building roads.

SANTA MARIA—System Oil Co.'s Bradley 1, 36-10-34, dr brown shale 3865 ft.

SUMMERLAND — Aquarium Oil Co.'s 1, rigging up rotary. Gaviotta Oil Co.'s 1, dr 225 ft, sp 7-24-29. George F. Getty's Becker Fee 1, bldg road to lcn; Becker 1, 22-4-26, bailing for cas test 2900 ft. Lincoln Drilling Co.'s Williams 1, 21-4-26, on pump test, td 1417 ft. Southern Exploration Co.'s Twitchell 1, cmt 15½-inch cas to test shallow showings, td 1000 ft.

SURF—Keystone Pet. Corp.'s True Ranch 1, dr 350 ft.

VERONICA SPRINGS—Veronica Springs Synd.'s 1, 20-24-27, rig.

VENTURA COUNTY

CASITAS—Miley Oil Co.'s No. 2-A, 12-3-24, dr hard sand 1655 ft.

CONEJO—American Oil Co.'s 1, 33-2-20, pumping water on test. Triunfo Oil Co.'s 1, 24-1-19, dr shale 1424 ft.

FILLMORE—Frank Oil Co.'s 1, 35-4-20, dr hard shale 1950 ft.

LOCKWOOD—Lockwood Valley Oil Co.'s 1, 28-8-21, dr 250 ft.

OJAI — California-Ventura Oil Co.'s La Crosse 1, dr brown shale 2835 ft. Continental Oil Co.'s Sulphur Mountain 3, dr shale 1960 ft.

PIRU—Bolsa Chica Oil Corp.'s Snow 1-A, 4-4-18, dr brown shale 675 ft. Pacific Western Oil Co.'s Tehmescal 5, 6⅝-inch cas cmt 3250 ft, td 4520 ft. Wasibi Oil Co.'s Bishop 2, 34-5-19, dr hard brown shale 675 ft.

UPPER RINCON CREEK — Associated's No. 1, 19-4-24, lcn.

SANTA PAULA — San Pedro-Pt. Fermin Synd.'s 1, 13-4-21, dr shale 990 ft.

SATICOY—Standard's Citrus 5, 10-2-22, dr shale 7510 ft.

SIMI—Shell's Marr 1, 31-3-17, setting wood plug at 870 ft, td 3325 ft.

VENTURA—Federal Oil Co.'s Sexton 1, dr hard shale 4460 ft.

MISCELLANEOUS

FRESNO COUNTY—Cates-Allen Oil Co.'s 1, 7-19-15, rig. Currency Pet. Co.'s 1, 14-21-14, re-dr 215 ft. Oceanside Oil Co.'s Thomas 1, 33-22-16, dr hard shale 465 ft. Petroleum Securities' Gatchell 1, dr 28-20-16, dr sand and clay 500 ft; Ladd 1, 28-20-16, dr clay and gravel, tough shale 3120 ft.

KINGS COUNTY—H. B. Porter's 1, 9-4-17, ready to sp.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, drilling 700 ft.

MONTEREY — Marland's Naciemento 1, 8⅝-inch cas cmt 4730 ft, td 5955 ft. Shell's 1, 15-22-19, fsh recovered, td 3580 ft. Standard's 1, grading for rig. Union's Paige 1, 8-22-8, dr shale 1215 ft.

SAN LUIS OBISPO COUNTY—Midwest Refining Co.'s Porter 1, 34-31-15, dr shale 1800 ft. Panorama Oil Co.'s 1, 7-31-21, dr brown shale 3965 ft. Paso Robles Synd.'s 1, 27-27-11, dr hard brown shale 2675 ft. Pismo Dome Oil Co.'s 2, 5-32-13, dr shale 1066 ft. Texas Pacific Coal and Oil Co.'s 1, showing heavy oil 2374 ft. Union's Russ 1, dr brown shale 3715 ft; Chandler 1, 12-32-15, dr shell 3650 ft.

TULARE COUNTY—Petroleum Securities' Vedder 1, 22-24-27, grading for rig.

SOUTHERN CALIFORNIA

BELVEDERE—W. H. Taylor's (Prairie's) Hellman 1, 32-1-12, dr gray sand and shale 4514 ft.

CLEARWATER—The Texas Co.'s Montana Land Co. 1, 8-4-12, dr hard shale 3320 ft.

COMPTON—California Well Drilling Co.'s 1, 11-4-13, will resume oeprations, td 7665 ft.

DEL REY—The Ohio Oil Co.'s R. G. C. 1, rig.

FULLERTON—Shell's Bastanchury 1, 28-3-10, dr shale and sand 4545 ft.

HAWTHORNE—Standard's Freeman 1, 5-3-14, dr sandy shale 6450 ft.

EL MONTE—L. Morgan West's 1, rig.

INGLEWOOD—L. P. Edwards' Wilson 1, 2-3-15, lcn.

MONTEREY PARK—Monterey Park Pet. Co.'s Jepson 1, 25-1-12, dr brown shale 4730 ft.

NEWHALL — P. B. Anderson's 1, 1-3-16, coring 438 ft. Southern California Drlg. Co.'s Needham 1, dr hard sand 1065 ft.

NEWPORT—Mesa Pet. Corp.'s B. A. 1, 16-6-10, dr brown shale 4800 ft.

POMONA—Pomona Oil Assn.'s 1, 32-1-8, dr hard gray sand 1205 ft.

PUENTE—Brea Canyon Oil Co.'s Bierd 1, 30-2-9, dr brown shale 900 ft. R. C. Rucker's Grazide 1, 27-2-10, dr hard brown shale 1925 ft.

RICHFIELD—Western Drilling Co.'s Day 1, 21-3-9, trying to cmt 6¼-inch cas, td 5780 ft.

SOUTH LOS ANGELES—G. S. Hanner's Stallman 1, 8-3-13, rig completed.

TELEGRAPH CANYON—Union's Rimpau 1, 13-3-9, dr hard shale 450 ft.

SAN BERNARDINO COUNTY—Urmi Oil Co.'s Schuh-Zellers 1, 31-2-8, dr brown shale 365 ft, oil and gas showings.

OKLAHOMA

WOODS COUNTY—T 28n, R 16w, Sec. 14, Peerless Oil Co. et al, Cromwell 1, c sw se, rig up. T 27n, R 16w, Sec. 33, Sinclair, Share 1, c ne sw, dr 4890 ft.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 425 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & Nat'l Union, McNeal 1, nw ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co., Cooper 1, nw c se, sd 4182 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al, 1, sec sw T. S. 5003-19 (show gas) dr 5674 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Vollmer 2, nec se ne sw, lost tools 5640 ft, sd.

WOODWARD COUNTY—T 24n, R 17w, Sec. 32, Otstot Dev. Co., Simmons 1, sec, sd 1500 ft.

WOODS COUNTY—T 24n, R 13w, Sec. 18, Miller et al, Copenhover 1, nwc, spd and sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, Washoma Oil Co., Acre 1, swc ne, rig.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beaver, White 1, sec nw, hfw, 4730-4800 ft, 5556 td.

WOODWARD COUNTY—T 23n, R 20w, Sec. 9, Billy, Wyatt 1, c se, sd 3762 ft. T 23n, R 17w, Sec. 2, John Farran, Belva 2, csl sw se, sd 1387 ft.

MAJOR COUNTY—T 23n, R 16w, Sec. 4, Wilson et al, Creech 1, nec sw, sd 510 ft.

NOBLE COUNTY—T 23n, R 1e, Sec. 24, Gypsy, Dailey 1, swc ne ne, dr 3515 ft.

WOODWARD COUNTY—T 21n, R 21w, Sec. 25, Sharon, Elmore 1, swc, rig blown down, td 3025 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros., Merklin 1, swc se ne, sd 1910 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al, Horton 1, c ne ne, spd and sd.

NOBLE COUNTY—T 20n, R 1w, Sec. 26, Magnolia, King 1, sec sw, dr 3000 ft.

BLAINE COUNTY—T 19n, R 1w, Sec. 13, Washoma, Phillips 1, c nw sw, sd 2415 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey & Consolidated Drlg., Quier 1, sec sw, sd 3970 ft.

KINGFISHER COUNTY—T 16n, R 7w, Sec. 6, Gault-Brown 1, c nw se, (owdd), show gas 5088-5128 ft, 8-in 5200 ft. T 16n, R 6w, Sec. 27, Crawford & McKenna's Sturgeon 1, nec sw, sd 4895 ft.

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears' Piatt 1, swc nw, sd 3223 ft.

CIMARRON COUNTY—T 5n, R 5 E.C.M., Sec. 22, Magnolia's School Land 1, c se ne, 4500 ft.

TEXAS COUNTY—T 1n, R 15 E.C.M., Sec. 25, Skaer et al's Hitch 1, nwc, sd 250 ft.

OSAGE COUNTY—T 16n, R 7e, Sec. 19, Peters Pet et al 1, sec, dr 490 ft. Sec. 23, White Eagle 1, nwc ne se, dr 560 ft. Sec. 33, Duffield & Howard 1, swc nw, dr 2690 ft. T 23n, R 10e, Sec. 32, Union Oil & Mining Co. 1, sec nw, dr 2225 ft.

LINCOLN COUNTY—T 17n, R 5e, Sec. 7, Mote & Wheeler et al's McLaguhlin 1, sec nw nw, rigging up. T 16n, R 4e, Sec. 15, J. V. Bailey's House 1, c ne se, ts 4616-31 ft water, d and a. T 16, R 6e, Sec. 19, Flynn and Morgan's Finely 1, swc, wx 4210-20 water, d and a. T 14n, R 6e, Sec. 33, Magnolia Pet.'s Mitchell 1, nec dr 4325 ft. T 12n, R 3e, Sec. 29, Phillips' Robinson 1, sec nw, rigging up tools.

PITTSBURGH COUNTY—T 9n, R 16e, Sec 32, Pattison et al's McDuff 1, swc nw se, sand 5556-59 ft, shot 240 qts co.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion's Sanders 1, nwc ne sw, show 2M gas at 1800 ft, sd 2692 ft.

LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O. & G. Co.'s Murray 1, swc, sd 3950 ft, several shows of gas, pulling 10-in csg.

OKLAHOMA COUNTY—T 12n, R 2w, Sec. 30, Magnolia's Noble 1, nwc sw sw, dr 6277 ft. T 12n, R 1w, Sec. 19, Mid Kansas & Ramsey's Trosper 1, nec nw, dr 6103 ft.

OKFUSKEE COUNTY—T 11n, R 7e, Sec. 6, Superior et al's Carolina 1, sec, surface pipe set.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 12, I.T.I.O. et al's Chatkey 1, swc ne, dr 1145 ft.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 9, Cal Cul, Wilson 1, nwc ne nw, dr 2885 ft.

HUGHES COUNTY—T 8n, R 11e, Sec. 25, McGee Bros.' Smith 1, sec sw, sand 3814-36 hfw, sd.

CLEVELAND COUNTY—T 7n, R 1w, Sec. 15, Sooner's Vandever 1, nec nw sw, sd 3120 ft.

POTTAWATOMIE COUNTY—T 7n, R 3e, Sec. 15, Amerada et al's Vineyard 1, nwc ne

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ne, dr 2595 ft. Sec. 19, Frank Moore's Fundis 1, sec ne, lcn. T 6n, R 3e, Sec. 11, Shaffer & Margay's Adams 1, nec, dr 3810 ft.

SEMINOLE COUNTY—T 6n, R 6e, Sec. 8, E. L. Harris' Harpoche 1, sec ne se, rur. T 6n, R 7e, Sec. 9, Gypsy's Thomas 1, sec nw, hfw, 4300-04 ft, pb to 2820 ft.

HUGHES COUNTY—T 5n, R 9e, Sec. 17, E. W. Whitney's Huddleston 1, sec sw, ur, 5-in 3910 ft, fshg 3908 ft.

PONTOTOC COUNTY—T 4n, R 8e, Sec. 23, Independent's Hampton 1, nec, fsh 3300 ft.

PITTSBURG COUNTY—T 4n, R 12e, Sec. 32, Kerr & Key's Tall 1, c nw nw, sd 2406 ft.

COAL COUNTY—T 2n, R 8e, Sec. 6, J. S. Cosden's Richardson 1, nwc ne ne, 8-in 2218 ft. Sec. 7, McGinley & Sigler's Wilsey 1, nwc se se, dr 2170 ft. T 2n, R 8e, Sec. 10, E. W. Whitney's Miller 1, sec ne, sd 202 ft. T 1n, R 11e, Sec. 10, I.T.I.O. Co.'s Cook 1A, sec sw nw, dr 7800 ft.

CUSTER COUNTY—T 14n, R 14w, Sec. 1, W. E. Witt's Wellman 1, c se, sd 100 ft.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Bucy & Stone's Williams 1, c sw, lcn. T 11n, R 26w, Sec. 4, L. C. Hivick's Davis 1, c nw ne, sd 1240 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey's Robinson 1, c ne nw, sd 150 ft.

BECKHAM COUNTY—T 8n, R 22w, Sec. 20, Carson et al's Denby 1, swc se ne, dr 1550 ft.

GREER COUNTY—T 6n, R 24w, Sec. 24, I.T.I.O. et al's Fee 1, c ne, reaming at 1902 ft.

CADDO COUNTY—T 6n, R 13w, Sec. 8, Abernathy & Brown's Horton 1, sec, sd 535 ft. T 6n, R 10w, Sec. 26, English Drlg. Co.'s Garner 1, nwc sw, dr 1600 ft.

HARMON COUNTY—T 4n, R 26w, Sec. 8, S. M. Stauffer's Caflteman 1, nwc se, sd 625 ft.

JACKSON COUNTY—T 1n, R 20w, Sec. 4, Houseman et al's Northington 1, nec, sd 2020 ft.

TILLMAN COUNTY—T 1n, R 17w, Sec. 13, Allen Bros.' Howell 1, nwc se, sd 835 ft.

COTTON COUNTY—T 1s, R 11w, Sec. 24, Bridwell et al's Crown 1, sec sw sw, d and a 2597 ft. T 4s, R 9w, Sec. 31, Amerada's Delana 1, sec nw nw, dr 3195 ft.

MURRAY COUNTY—T 1n, R 2e, Sec. 17, Revels & McGee's Wolfe 1, nwc, sd 2275 ft.

JOHNSON COUNTY—T 1s, R 7e, Sec. 29, Smith-Kinsley's Lane 1, sec nw, sd 2250 ft.

CARTER COUNTY—T 4s, R 1e, Sec. 32, Leonard Woodruff's Zellner 1, nec nw se, fsg 1855 ft. T 4s, R 2e, Sec. 32, Tex-Okla. Drlg Co.'s Anderson 1, sec ne se, sd 420 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. C. Endicott et al's Craig 1, c nw ne, dr 1560 ft.

WOODWARD COUNTY—T 23n, R 17w, Sec. 23, The Prairie & Transcontinental's Wilbur 1, nec, dr 4660 ft.

CLEVELAND COUNTY—T 10n, R 2w, Sec. 8, Prairie & Slick's Sudik 1, c ne ne, sd 6955 ft.

KANSAS

STEPHENS COUNTY—Trees Oil Co.'s Candy 1, sw ne sw, 3-35-38w, mvg in rotary, td 500 ft.

SUMNER COUNTY—Davidson et al's Strickland 1, sw se, 12-35-1w, rig. White & Chenney's Unknown 1, nec, 11-34-2w, rog.

STEPHENS COUNTY—W. Sidwell et al's Kelly 1, sw ne, 16-34-38w, sd 1310 ft.

BARBER COUNTY—Skelly's Temple Ranch 1, sw ne, 13-34-15w, dr 2630 ft.

HARPER COUNTY—Slick's Miller 1, sec, 13-34-5w, dr 3215 ft.

SUMNER COUNTY—Mid Continent's Clark 1, nec, 31-34-3w, dr 1950 ft. Morgan & Carey's sw se, 9-34-1e, dr 1085 ft.

BARBER COUNTY—Barbara's Angel 1, c nw ne, 14-33-13w, dr 4612 ft.

SUMNER COUNTY—Shell's Armstrong 1, nec, 12-33-1e, ru.

BARBER COUNTY—Robertson et al's Powell 1, c se se, 11-32-10w, dr 100 ft.

HARPER COUNTY—Slick's Thompson 1, nwc, 19-32-6w, dr 3600 ft.

COWLEY COUNTY—J. E. Markey's Tatum 1, se sw, 11-31-6e, sd 500 ft. Landen & Slick's Daniels 1, nec se, 6-20-5e, hfw 1880 ft.

KINGMAN COUNTY—Gypsy's Kincaid 1, ne nw, 18-29-5w, dr 4460 ft, water sand.

SEDGWICK COUNTY—Johnson & Marshall's Roy 1, c ne se sw, 23-29-1w, dr 2835 ft. Lario's Teachoiif 1, ne sw, 27-19-1w, dr 2250 ft. Sullivan et al's Shelly 1, c nw ne se, 32-29-2e, Siliceous lime 3595-3608 ft, d and a.

BUTLER COUNTY—Empire's Parks 1, ne nw, 36-29-4e, dr 1375 ft.

PRATT COUNTY—Jones & O'Haver's Lunt 1, csw nw, 15-28-14w, sd 2865 ft.

SEDGEWICK COUNTY—Marland & Amerada's Sensroth 1, nwc, 25-28-4w, spd. D. P. Fleeger's Ottaway 1, c sw sw nw, 16-28-2w, rig. Kellar & Lewis' Buckles 1, nw se, 3-28-1w, fsg 975 ft. Kyle et al's Pinney 1, c sw nw se, 29-28-1w, spr and sd. Shawver et al's Scott 1, c se sw sw, 10-28-1e, set 5-in cas 3390 ft, co. La-Font et al's Carlton Bros. 1, c se se nw, 34-28-1e, sd 1685 ft.

KIOWA COUNTY—British American's Woodward 1, nec, 35-27-17w, dr 4320 ft.

SEDGEWICK COUNTY — Prairie-Slick's Rosenhagen 1, c sw se ne, 33-27-4w, sd wx sand 4181-91 ft. Miller & Wentz's Shaeffer 1, nw ne, 9-27-2w, dr 3680 ft. Hammond & Stout's Roeder 1, sw nw, 23-27-2w, dr 3600 ft. C. B. Davis' Kinkead 1, nec, 14-27-1e, dr 805 ft. Lario's Calkins 1, sw se, 7-27-2e, dr 2465 ft. E. W. Marland's Huggins 1, c se nw sw, 30-27-2e, dr 1440 ft.

BUTLER COUNTY—Alladin's Bronsenger 1, ne se, 24-27-3e, dr 2450 ft.

GREENWOOD COUNTY—F. Konkey et al's Rock 1, ne nw ne, 7-27-12e, ru.

RENO COUNTY—Austin Drlg. Co.'s Strickey 1, swc nw, 12-26-5w, dr 3140 ft.

SEDGEWICK COUNTY — Washabaugh's Harrison 1, c nw ne ne, 3-26-2w, dr 2350 ft. Boyle's et al's Sandusky 1, c nw ne se, 34-26-1w, dr 915 ft. Simmons & Canary's Scott 1, ne nw ne, 22-26-1e, dr 3250 ft. Burnett's Davidson 1, c nw nw sw, 27-26-1e, sd 2668 ft. Twist et al's Armstrong 1, ne nw, 28-26-1e, spd and sd.

BUTLER COUNTY—Arkansas Fuel's Campbell 1, sec, 9-28-3e, dr 1070 ft. Lario's Gordon 1, nwc, 15-26-3e, dr 1085 ft. Sinclair's Johnson 1, nec, 16-26-3e, dr 1115 ft.

SEDGEWICK COUNTY—Empire's Henderson 1, swc, 35-25-4w, dr 4180 ft, wx 4094-4130 ft. Deering-Marshall's Dick 1, c sw, 4-25-1w, dr 2723 ft. Twist et al's Joseph 1, 4-25-1w, sd 1980 ft.

BUTLER COUNTY—White Eagle's Bacholder 1, sw c, 17-25-3e, set 6-in cas 2775 ft. Travis et al's Harrison 1, sec, 21-25-3e, spd and

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GREENWOOD COUNTY—Ward-McGinnis' Anderson 1, ne nw sw, 13-25-10e, dr 400 ft.

RENO COUNTY—Skelly's Birkett 1, ne sw, 30-24-7w, dr 2310 ft.

HARVEY COUNTY—Independent & Reserve's Moulds 1, c ne, 7-24-1w, dr 2365 ft. Jolly & Ogg's Randall 1, nec, 11-24-1w, sd 3444 ft. Payne et al's Ady 1, ne nw se, 16-24-1e, dr 700 ft.

BUTLER COUNTY — Crawford et al's Thompson 1, nw sw, 2-24-3e, set 8-in cas 2406 ft.

HARVEY COUNTY—Joe Liggett's Regier, c se nw se, 2-23-3w, rog. Rosenthal et al's Ingalls 1, c nw sw, 24-33-3w, co, td 3295 ft. McCulloch's Prouty 1, nw sw, 3-23-1w, sd 2020 ft. Jolly & Ogg's Hupp 1, se ne, 22-23-1w, sd 3220 ft. Margaret Gay Oil Co.'s Grouse 1, nw ne nw, 29-33-1w, sd 3012 ft.

HODGEMAN COUNTY—Phillips' Houseman 1, c nw ne, 30-22-22w, dr 905 ft.

HARVEY COUNTY—Roth & Fauret's Bombrowsky 1, nwc, 26-22-1e, dr 2460 ft.

PAWNEE COUNTY—F. C. Troupe's Lovett 1, cel ne ne, 31-21-16w, sd 1560 ft.

McPHERSON COUNTY — Ted Washabaugh's Vosshell 1, ne ne, 9-21-3w, swedging pipe, td 3302 ft. Helmerich & Payne's Rosen 1, c ne se sw, 23-21-2w, dr 3225 ft. Helmerich & Payne's Klassin 1, se ne ne, 14-11-1w, sd 2015 ft.

MARION COUNTY—Holworth et al's Skiles 1, se nw nw, 30-21-3e, sd 2998 ft, top dolomite 2980 ft.

LYON COUNTY—Blair et al's Martindale 1, c nw ne ne, 27-21-11e, rig. Gordon & Stat's Murphy 1, nw ne, 32-21-11e, ru.

RICE COUNTY—Higgins & Steinbuble's Shurr 1, ne sw, 21-20-10w, 8-in cas 3105 ft; 2300 ft, OIH 3278-80 ft, bldg tanks. Derby's Johnson 1, c nw ne se, 24-20-6w, rog.

McPHERSON COUNTY — Mid Kansas' Kuns 1, c se sw, 11-20-5w, rig. Slick-Pryor & Lockhart's Gratten 1, c ne nw nw, 34-20-3w, fsg 2150 ft. Lario's Diener 1, se sw, 10-19-1w, rig. Tatlock et al's Meyer 1, c sw sw ne, 32-20-1w, ur 6-in cas 3400 ft, base of lime.

RUSH COUNTY—Danciger O. & R. Co.'s Pinonka 1, c ne sw ne, 17-19-17w, show oil 3515 ft, dr 3677 ft.

RICE COUNTY—Allison & Fitzwilliams' Poland 1, ne sw ne, 36-19-8w, cellar. Millmack's Cain 1, se, 29-19-7w, rig.

McPHERSON COUNTY—Perry et al's Wade 1, c se, 20-19-4w, lcn. McPherson's Chindberg 1, c nw nw, 18-19-2w, sd 2996 ft.

MARION COUNTY—Moore et al's Miller 1, nec, 26-19-1e, d and a 3392 ft, Siliceous lime 3364-85 ft. General Utilites Propp 1, c ne se sw, 8-19-4e, dr 2050 ft.

LANE COUNTY—Robinson et al's Dickerson 1, swc nw se, 11-18-27w, 8-in cas 2625 ft.

NESS COUNTY—E. W. Marland's Moses 1, ne se, 7-18-25w, dr 3000 ft. Barnsdall's Lauck 1, c sw, 35-18-21w, d and a 4755 ft.

RUSH COUNTY—Sinclair's Seur 1, c se nw nw, 8-18-17w, dr 3565 ft.

McPHERSON COUNTY—E. W. Marland's Swanson 1, c ne sw ne, 36-18-4w, dr 1840 ft. McPherson County Gas Co.'s Rasmussen 1, swc, 8-18-3w, sd 2445 ft.

MARION COUNTY—Shell's Scully 1, nw ne, 34-18-3e, dr 2000 ft.

RUSH COUNTY—Danciger's Swindt 1, c sw se sw, 22-17-17w, fsg 3675 ft. Central Commercial's Brock 1, nec sw sw, 12-17-16w, spd and sd.

RUSSELL COUNTY—Gobel & Bending's Bartlett 1, c sw sw, 28-17-15w, sd 1190 ft. Tatlock et al's Sacker 1, c sw se, 25-17-9w, rig.

ELLSWORTH COUNTY—Texas' Sherman 1, ne sw, 16-17-18w, dr 1620 ft.

LANE COUNTY—Blankenship Pet. Co.'s Shaeffer 1, nec ne, 24-16-28w, spd and sd.

SALINE COUNTY—Boyle et al's Miller 1, swc se, 21-16-1w, ur 5-in cas 3250 ft.

DICKINSON COUNTY—Prairie's Morgan 1, nwc, 26-16-3e, dr 2666 ft. Millmack et al's Biehler 1, sw ne, 28-16-4e, dr 2850 ft shale.

ELLIS COUNTY—Rush Oil Co.'s Gatewood 1, nw, 4-15-20w, fsg 2555 ft. Finney & Weimer's Freeman 1, nw se se, 24-15-20w, spd and sd.

RUSSELL COUNTY — Empire-Prairie's Backs 1, c se ne ne, 23-15-14w, rig.

ELLSWORTH COUNTY — Templeman's Lanbangagen 1, c sw, 20-15-6w, dr 1050 ft.

SALINE COUNTY—Austin's Olsen 1, e nw sw se, 10-15-4w, spd. Dixie's Muiri, csw se sw,

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RUSSELL COUNTY—Allison & Fitzwilliam's Mahoney 1, nw se, 5-14-12w, sd 3218 ft, hfw.

SALINE COUNTY—Kenning-Coastal Co.'s Beal 1, c, 23-14-5w, sd 4005 ft, top green shale, 3920 ft.

ELLIS COUNTY—Brown's Gestner 1, nw sw nw, 13-13-18w, d and a 4010 ft, show 3960-64 ft. Mid West's Berens 36, c se se nw, 12-13-16w, rig.

SALINE COUNTY — Kenning-Coastal's Hughes 1, cw½ ne nw, 20-13-4w, spd and sd.

WALLACE COUNTY—Menton & Entyre's Parker 1, c se nw sw, 8-12-41w, rig. Phillips' Spitz 1, c se se se, 24-12-26w, rig.

TREGO COUNTY—Mid-Kansas' Ridgeway 1, ne sw, 28-12-21w, dr 730 ft. Day's Guyler 1, c sw ne ne, 36-12-21w, spd and sd. Prairie's Bungardt 1, c nw se nw, 31-12-31w, rig. Day's Unknown 1, c ne nw sw, 2-11-21w, dr 2230 ft.

ELLIS COUNTY—Burens et al's Fisher 1, nw se, 4-11-20w, rig. Burger et al's Hadley 1, c sw sw nw, 20-11-17w, show oil 3403 ft, set 6-in cas.

OSBORNE COUNTY—Jarvis' Jellison 1, sec, 13-10-15w, d and a 3578 ft, hfw 3533-75 ft. Derby's Meimeller 1, c nw sw, 9-10-3e, rig.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nw sw sw, 19-10-17e, ru and sd.

ROCKS COUNTY—Prairie's Gick 1, c se, 22-9-18w, d and a 4127 ft. Burford & Brimm's Toxa 1, ne sw se, 22-9-17w, spd and sd. Krueger et al's Steis 1, c nw se sw, 12-9-16w, spd and sd.

GRAHAM COUNTY—Gulf Coast's Johnson 1, swc sw se, 27-8-15w, dr 4000 ft.

SHERMAN COUNTY—A. L. Hensen et al's Murray 1, ne se nw, 22-7-40w, sd 3035 ft.

OSBORNE COUNTY—Phillips' Grieve 1, nw se ne, 6-7-12w, dr 960 ft.

RILEY COUNTY — Derby-Skow Bros.' Lundstrum 1, ne, 32-7-5e, dr 945 ft.

OSBORNE COUNTY—Trees' Payenter 1, c ne se se, 22-6-15w, sd 3100 ft. Mid-Kansas' Boyce 1, se nw, 8-6-13w, dr 1150 ft.

RILEY COUNTY—Gray et al's Smith 1, ne se, 30-6-6e, dr 1200 ft.

SMITH COUNTY—Phillips' Clydesvale 1, se nw, 23-5-14w, dr 1608 ft.

WASHABAUGH COUNTY—McCool & Vincent's Linn 1, nw ne, 27-4-3e, dr 2300 ft.

MARSHALL COUNTY—Irwin et al's Cooper 1, ne nw, 10-3-7e, sd 2240 ft, hfw 2045-65 ft.

PHILLIPS COUNTY—Watsonian & British American's Weiman 1, c sw sw, 34-2-19w, dr 3440 ft, show oil and water 3390 ft.

ARKANSAS

CALHOUN COUNTY—Ohio Oil Co.'s Stout Lbr. Co. 1, 31-14-12, dr 3005 ft. Phillips Pet. Co. et al's Freeman-Smith Lbr. Co. 1, 25-16-13, dr 30 ft. Eagle Mills Lbr. Co. 1, 11-12-16, dr 3130 ft.

COLUMBIA COUNTY—Jacob Laskin et al's Dennis 1, 11-20-23, cemtd 6⅝-in cas 3505 ft, td 3567 ft. T. R. Brown et al's Spencer 1, 18-18-22, dr chalk 2350 ft. Helena O. & G. Co.'s Pickler 1, 19-19-22, sd 2762 ft.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, T.A. 3782 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, dr 3015 ft. Chaywood Oil Co.'s Malvern Lbr. Co. 1, 17-2-17, wo 1668 ft.

GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, T.A. 1400 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, arr resume dr 2176 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 31-12-31, T.A. 2941 ft.

LOGAN COUNTY — Ark. La. Pipe Line Co.'s Hanna 1, ur 8¼-in cas 2800 ft, td 3000 ft.

MADISON COUNTY—Independent O. & G. Co.'s Banks & Teague 1, 6-16-17, cemtd 6⅝-in cas 2168 ft, tested dry, arr to plug back to 410 ft, arr test gas show 600 ft.

OUACHITA COUNTY—Copenhaver et al's Warnick 1, 2-15-17, dk. Flaucher et al's Bucks 1, 7-15-17, T.A. 2465 ft. Lohman et al's Fogle 1, 18-14-16, sd 1510 ft. Timberlake et al's Wright 1, 25-14-18, sd wo 2907 ft. Wesson et al's Booth 1, 12-15-19, sd 2203 ft. McDonald Oil Corp.'s Wilson A-2, 25-15-18, dr 2550 ft. Root Ref. Co.'s Wilson 1, 25-15-18, perf cas 2725-85 ft, did not help yield to continue as pumper. Houston Oil Co.'s Wilson B-4, 25-15-18, dk, (formerly McDonald Bros. Inc., Wil-

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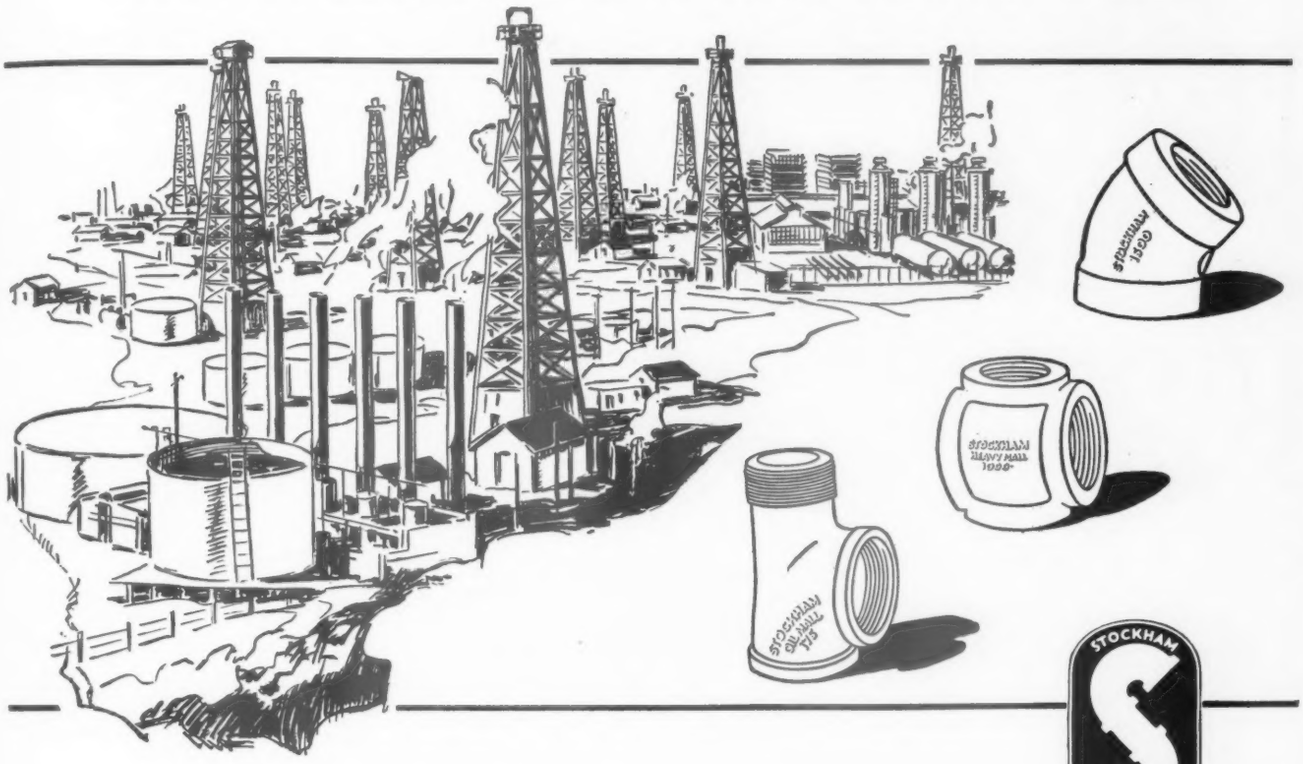

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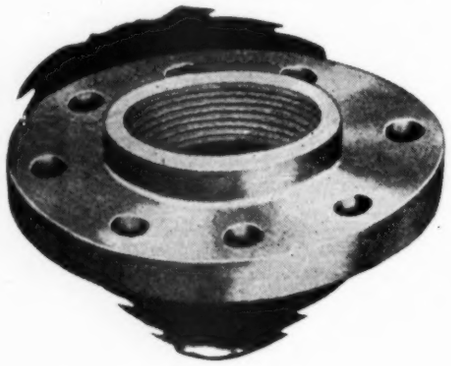

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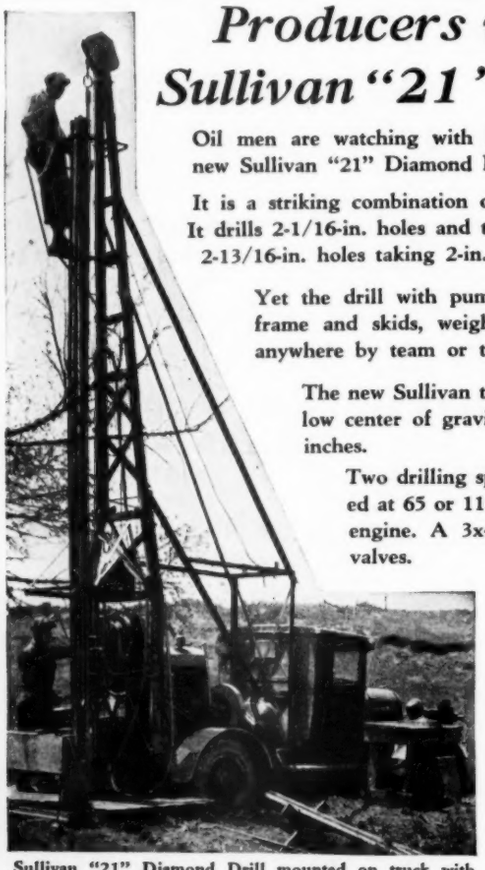

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Sullivan Diamond Drills

son 4). Geo. Kouri et al's A. Wilson 1, 24-15-18, rig up.

PULASKI COUNTY—Wonder State Dev. Co.'s Wilson 1, 21-2-11, lcn.

UNION COUNTY—Modisette et al's Union S. M. Co. 1, 1-18-14, dk pat. S. Arrendale's Gallagher & Nelson 1, 18-18-17, arr run testing tool br sand 2098-2119 ft. W. M. Coates, Tr.'s McDuffie 1, 32-19-16, missed d.s. test 3953-4016 ft coring 4074 ft. O. W. Estes' Ramsey 1, 24-17-14, dk. E. L. Foster et al's Murphy Land Co. 1, 22-17-17, sd 1400 ft. McDonald Bros.' Mayfield 1, 29-19-15, T.A. 2210 ft. Ohio Oil Co.'s Stout Lbr. Co. 1, Acct 2, 30-16-13, dr 1400 ft. Root Ref. Co.'s Oliver 1, 18-17-13, tested 8 joints s.w. through d.s. 3085-96 ft, coring 3198 ft. Stark et al's Ainsworth 1, 8-19-16, dk. T. J. Woodley's First National Bank 1, 34-19-18, dk.

EAST TEXAS

BOWIE COUNTY — Hooks O&G Co.'s Rosenberg 1, King sur, T. A. td 3086 ft.

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1920 ft.

HARRISON COUNTY—McRitchie et al's Dean 1, Craft sur, sd 2165 ft.

MARION COUNTY—Pettit Oil Co.'s Rives 3, Noll sur, tested dry 2279 ft, pulling liner to deepen.

RED RIVER COUNTY—D. M. Buffington's Hoosier 1, Hughart sur, sd 1863 ft. Shad Harper's Garland 1, Jos. Wagley sur, sd 1440 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd 1862 ft.

SHELBY COUNTY—Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3004 ft. Gulf Ref. Co.'s Caraway 1, Patterson sur, dr grey lime and blue shale 5355 ft.

NORTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CADDO PARISH—		
Palmer Corp., Hunter Est. 8-19-14..	40	2401
Standard Oil Co. of La., Henderson 2, 7-19-14	25	2407
Hunter Est. 5, 17-19-14	10	2411
LASALLE PARISH—		
Tunica Pet. Co., L&A 47, 17-7-2e	18	818
RICHLAND PARISH—		
Northern La. Nat. Gas Co., Boykin 3 (Relief Well 2), 20-17-6e.....	*	908
Palmer Corp., Miles 1, 11-17-6e...	*	2725

BIENVILLE PARISH—W. G. Gray, Tr.'s, Snyder 1, 15-16-6w, sd wo 2924 ft.

BOSSIER PARISH—Corbett et al's Murff 1, 18-17-11, sd 990 ft. Nell & Lanier's Biedenharn 1, 23-21-14, sd 790 ft. Triangle Drilling Co.'s Thigpen-Herold 3, 11-17-12, dr 900 ft. Palmer Corp.'s Roos 1, 23-17-12, lcn. Walker et al's Antrim 1, 28-22-13, sd wo 3017 ft. John F. Woodman's Bolinger 1, 9-22-11, sd wo 3532 ft. Deleware La. Dev. Co.'s Bolinger 4, 38-23-11, claim 1500 ft oil in hole to pump, td 3170 ft.

CADDO PARISH—D. C. R. Oil Co.'s Oden 1, 20-19-14, 700 ft oil in hole wosr, td 2423 ft. Dixie Oil Co.'s Robertshaw 92, 13-21-15, coring sandy lime 6304 ft. Sam Gold et al's Hunter Est. 2, 17-19-14, dr 2000 ft. Lide & Davidson's Oden 1, 21-19-14, sand from 2400-2405 ft; dr gummy shale and shells 2535 ft after leaving red beds 2533 ft, arr ds test. Fred McWilliams' Oden 1, 20-19-14, rig up. S. T. Onyett, Tr.'s Dixon 1, 10-19-14, dr 600 ft. I. N. Pharris, Tr.'s, Oden 1, 19-19-14, rig up. Ohio Oil Co.'s Hunter Est. 2, 17-19-14, 200 ft oil in hole, td 2415 ft, will pump. Hunter Est. 3, 17-19-14, cemtd 6-inch cas 2378 ft. Hunter Est. 4, 17-19-14, lcn. Simplex Oil Co.'s Dickson 1, 33-20-14, cemtd 6-inch cas 2459 ft, bailing 400 ft mud in hole, showing little gas, td 2468 ft. Standard Oil Co. of La.'s Henderson 3, 7-19-14, dk. Hunter Est. 3, 17-19-14, set 6-inch cas 2360 ft, td 2412 ft. Hunter Est. 6, 17-19-14, will pump, td 2418 ft. Hunter Est. 7, 17-19-14, dr gmbo 2200 ft. Hunter Est. 8, 17-19-14, lcn. Oden 3, 18-19-14, lcn. A. H. Tarver's Glassell-Dickson 1, 31-20-14, topped Nacatosh 795 ft, dr 850 ft. Sam Gold et al's Hunter Est 3, 17-19-14, lcn. Hunter Est. 4, 17-19-14, lcn. Haynes Bros.' Oden 1, 19-19-14, rig up. Lide et al's Hunter Est. 1, 22-19-14, lcn.

CATAHOULA PARISH—Lochnager O&G Co.'s Taliaferro 1, 26-9-6, sd 900 ft.

CLAIBORNE PARISH—O. G. Collins et

Best, Texas

Texon Oil & Land Company's test on University lands in Reagan County, Texas, opened the Big Lake Field on May 28, 1923, when it began flowing 80 barrels per day of high gravity oil at 3026 feet. The new producer was then 50 miles from the nearest production. As a result of this well came the widespread play in West Texas that has brought about the opening of many other important fields.

The field did not have a speedy development, but up to the early part of 1927, it had produced 21,204,705 barrels, or 77 per cent of the entire production of West Texas to that time. This represented an average of 132,520 barrels per well. Up until the first of the year 1929 the Big Lake field had produced 37,581,000 barrels of crude oil.

A. L. HENDERSON
Store Manager at Best

The most important achievement of the district has been the completion of the world's deepest producing well, Texon Oil & Land Company's University 1-B Group One. This well overshadowed other West Texas completions during the year 1928, when it was completed as a commercial producer at 8500-23 feet. The well came in for but 7½ barrels of oil and a small gas pressure in November, but by December was making 1302 barrels of 56 gravity oil and 12,500,000 cubic feet of gas. Since that time the well has more than doubled its oil output without ever having been deepened by the bit.

The second producing area to be opened in Reagan County was the Skelly Oil Company's wildcat producer in Section 33, Block 8, which made 35 barrels at 3157 feet, during February, 1928. The well that opened the Big Lake field was the first ever drilled in the county, but it required 58 dry holes before the Skelly Company opened the second producing area.

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al's Mosely 1, 29-20-5w, dk. El Dorado Chief Oil Co.'s Baker 1, 26-20-7w, T. A. 3040 ft. Dance 1, 27-20-7w, dr 1100 ft. Southern Crude Oil Purch. Co.'s Christian 1, 22-23-6w, dr shale 2646 ft.

DE SOTO PARISH—P. J. Becker's Tull 1, 23-12-15, T. A. 1805 ft. Benedum & Trees' State 2, 22-14-12, dr 3245 ft. Fair et al's Hamilton 1, 1-12-13, dr 1125 ft. L. M. Moffitt, Tr.'s, Boatright 1, T. A. 3078 ft. Longstreet Synd.'s Ramsey 1, 33-13-16, sd 2802 ft. R. O. Roy's Rogers 1, 13-13-14, dr 2060 ft.

FRANKLIN PARISH—Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

JACKSON PARISH—Geo. O. Baird's Tremont Lbr. Co. 1, 24-16-1w, dr sandy lime 3212 ft.

LA SALLE PARISH — Tunica Pet. Co.'s L&A 48, 16-7-2e, dr 700 ft. L&A 49, 17-17-2e, dk.

LINCOLN PARISH—V. E. Shaw et al's Voss 1, 1-20-3w, sd 2774 ft.

MOREHOUSE PARISH — Rainbow Oil Co.'s Louisville Cooperage 1, 33-22-8e, dk. J. P. White's Chess Wymond 1, 32-19-6e, dr red beds 2603 ft, tested dry, ds test 2608-18 ft, arr deepen.

NATCHITOCHES PARISH — S. D. McDaniels' Clarke & Morse Lbr. Co. 2, 23-5-6, sd 2536 ft. Robeline O&G Co.'s Cassady 1, 7-8-9w, ds stuck 3250 ft.

OUACHITA PARISH — Haynes Oil Co.'s Dixie Lbr. Co. 1, 17-17-3e, lcn. Ouachita Nat. Gas Co.'s D'Arbonne B-2, 25-19-2e, sd 3349 ft. Phillips et al's School Fee 1, 16-16-4e, dr 4085 ft.

RAPIDES PARISH — G. E. Silbertson's Willemach 3, 13-5n-4w, T. A. 2250 ft. Glenmora Pet. Co.'s Fee 1, 1-2n-2w, T. A. 3850 ft.

RICHLAND PARISH—Austin & McDonald's Millsaps 1, 17-17-6e, test 200,000 ft gas, wo 2510 ft; Millsaps 2, 17-17-6e, sd wo 2697 ft; Millsaps 3, 16-17-6e, lcn; Millsaps 4, 16-17-6e, lcn. Hope Prod. Co.'s Eubanks 1, 26-17-6e, dry 2450 ft, dr rock 2478 ft. S. R. Humble's Binion-Sartor 1, 22-17-6e, dr 1384 ft. Northern La. Gas Co.'s Boykin 2 (relief well 1), dk. Palmer Corp.'s Eubanks 1, 26-17-6e, lcn; Jones 1, 22-17-6e, set 6⅝-inch cas 2306 ft. Southern Carbon Co.'s Binion-Sartor 1, 21-17-6e, dr 2202 ft. Palmer Corp.'s La. Pet. Co. 1, 22-17-6e, rig up on abn test; Miles 2, 12-17-6e, rig up. Northern La. Gas Co.'s Boykin 4 (relief well 3), rig up.

SABINE PARISH—R. L. Gay's Bowman-Hicks 4, 14-7-14, dr 250 ft. Long-Bell Lbr. Co. 1, 26-8-14, dr 2350 ft. Sabine Lbr. Co. 2, 23-7-14, tested dry, show oil 2234 ft, dr 2438 ft. A. H. Tarver's Long-Bell Lbr. Co. 1, 29-8-13, tested dry 3500 ft, wo 3535 ft.

UNION PARISH—G. E. Camatte's Tugwell 2, 21-22-1e, sd wo 2450 ft. H. C. McDonald's Union Sawmill 2, 18-23-1e, sd wo 1500 ft. Sundby et al's Security Trust 1, 6-23-1e, sd wo 2300 ft.

WEBSTER PARISH — Donohoe Oil Co.'s Roseberry 1, 33-23-9, std 1400 ft fluid in 5 ft sand will pump, td 2767 ft. P. Hudson's Slack 1, 1-22-11, dry 2730 ft, dr 2745 ft. Kemp et al's Campbell 1, 11-22-10, tested sw 2650 ft, arr deepen. Magnolia Pet. Co.'s Atkins 1, 4-22-9, tested 1000 ft oil small show sw, will pump, td 2665 ft. Sallie Coyle 1, 2-22-11, 1500 ft fluid in hole, fsh bailer, td 2695 ft. McCook & Hibbler 1, 22-21-10, dr 6542 ft. Roseberry 1, 15-23-9, fsh ds 2504 ft.

WEST CARROLL PARISH—W. F. Hyde's Chickasaw Imp. Co. 1, 24-23-11e, dk.

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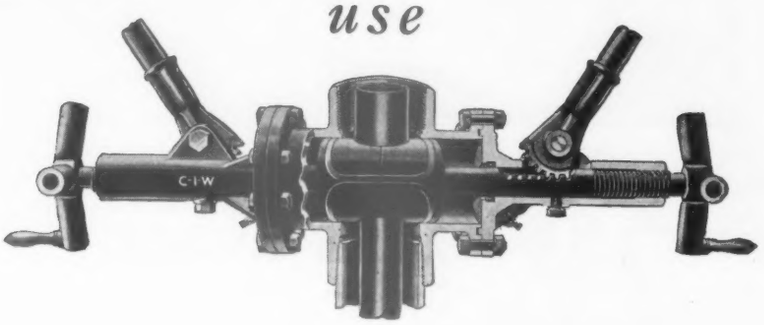

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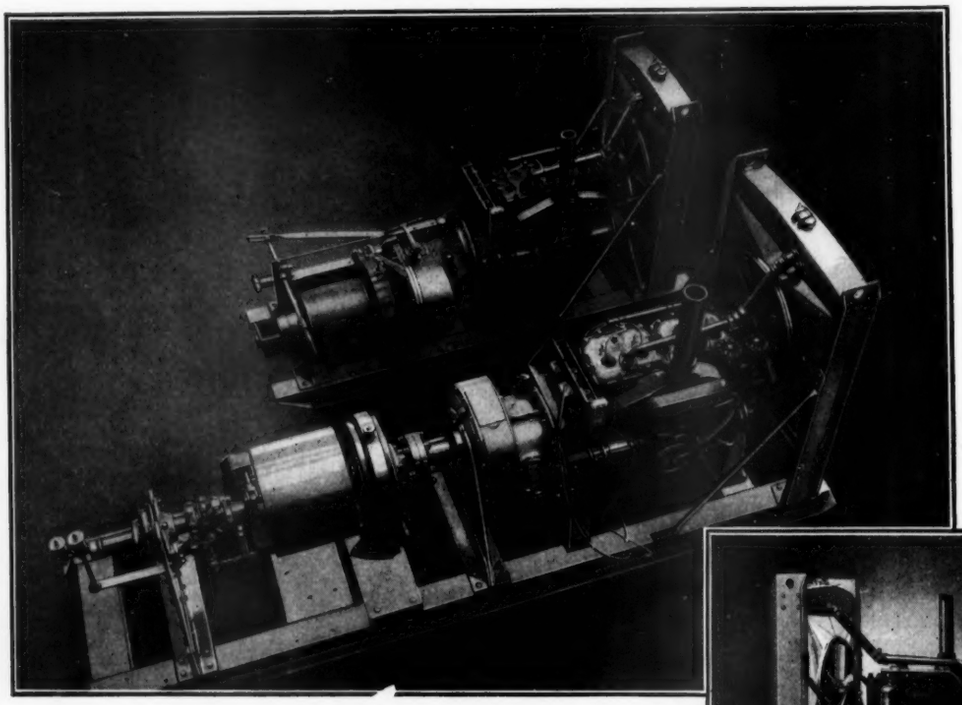

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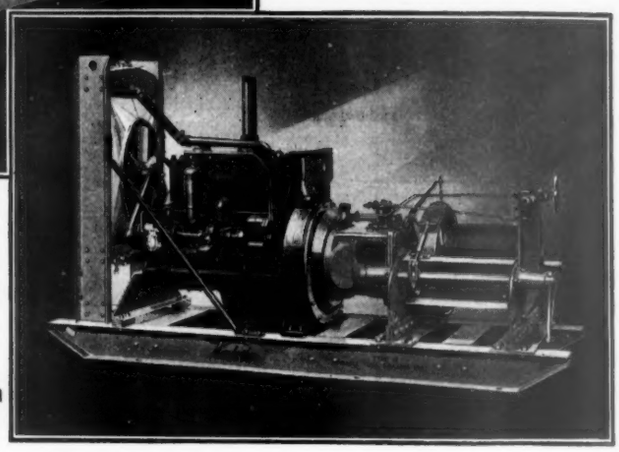

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The Doheny-Stone drilling machine, embodying a compact shaft-driven unit, an all steel draw works and hydraulic rotary table, while not new to the industry, is just now beginning its first widespread use after several years of satisfactory service in California. The first unit was recently introduced into West Texas, two machines have been run in Oklahoma, one in Canada, three in Russia and a number of the outfits in the Rocky Mountain states, including Utah and Montana. Its record in California fields until this summer included the drilling of 32 holes.

This drilling system, originally designed in one large combination, has been made into three sizes, No. 1, for drilling 2500 foot holes, No. 2 for running 5000 feet, and No. 3 for deeper wells. All three of the units are designed on the same principle. The draw works is a self-contained unit equipped with roller bearing throughout. The rotary table is mounted on hydraulic cylinders furnishing positive control, feeding and operating means for either up or down motions. The transmission is designed and arranged for direct connecting prime movers of steam, electricity or internal combustion engines.

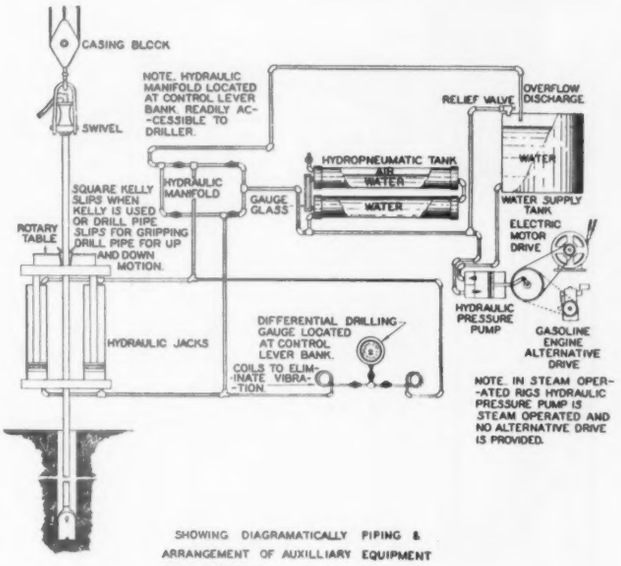
Power from the prime mover comes off a direct connected shaft into a transmission box under the draw works, and here three speeds are delivered direct to the draw works and the rotary table. Three additional speeds are available for the draw works through a planetary gear train composed of one sun gear, two planet gears and one internal gear, self contained and running on Timken roller bearings, operated by post brake clutch for picking up loads instead of with the prime mover.

The hydraulic feature operates separate and apart from the draw works and from the rotary feature of the table. Hydraulic power is controlled by means of valves conveniently located for the driller, and two gauges are connected in the manifold to indicate pressure applied. The rotary table is mounted on a hydraulic actuated cross head operated by means of two cylinders. Hydraulic power is fed for either an upward or downward action, independent of the draw works or power plant.

In combination cable tool and rotary drilling, hydraulics may be used in carrying a string of casing. In combination with a simple auxiliary gasoline engine driven pump it may provide a flexible and independent lifting means. The gripping and driving device is designed to operate with slips engaging Doheny-Stone flush joint drill pipe and tool joints. Reversal of pressure from upward to downward force or vice versa requires no change of slips.

Rotary table speeds range from 33 to 115 r.p.m. on opening throttle, due to the variable speed transmission, and may be manipulated to values desired within this range. The hydraulic cylinders range in lifting capacity from 65 tons at 350 pounds pressure to 150 tons at 800 pounds pressure.

Controls for the power, draw works and hydraulics are located at position for the driller in one corner of the derrick floor where he conveniently handles all controls by levers.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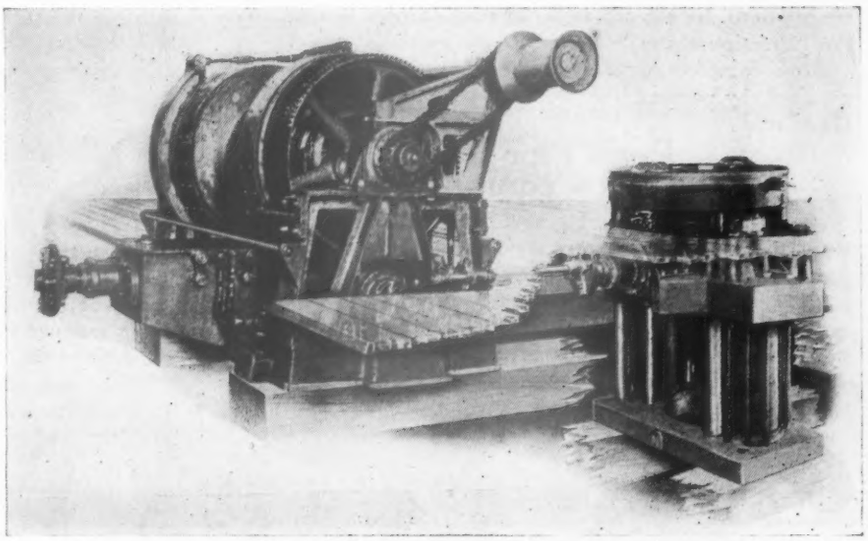
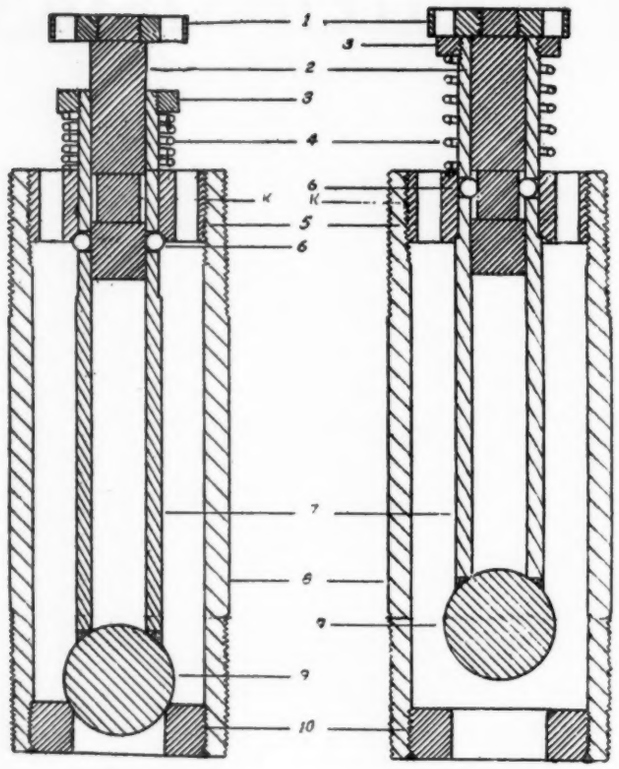
J. L. JOHNSTON

J. L. Johnston and associates, El Dorado, Arkansas, are now marketing their new releasable valve on which a patent was obtained June 4, 1929.

This new product, which is illustrated here, is designed to be opened while in inaccessible positions without removing it from its position or exposing it for manipulation. It may be used especially in drill stems, flow lines, pipe line laterals, or dump buckets for cement. Its primary purpose is for installation in a locked position to control



Set-up of Doheny-Stone Draw Works and Hydraulic Feed Rotary Table



Johnston Releasable Valve

fluid or pressure until the proper time of opening, when it is tripped from a convenient working position.

In use on lateral lines to prevent a backing up of fluid from the main, it may be opened from the pump station or other originating point of the line by floating a plug or joint abead of the gas or fluid to trip the release trigger. It is used in connection with the Johnston formation tester to prevent mud or fluid from entering in the event a bridge or tight place in the hole causes the automatic feature of the tester to open. After the tester is lowered to bottom on a string of drill pipe and operators are ready for the test the valve is tripped by lowering an object into the hole.

It is further designed for use in running tubing against pressure to prevent fluid from coming up through the tubing.

The valve is made in all sizes required in field work, and screws onto the tubing, drill stem, into a pipe line, or onto the formation tester.

More complete details on the Johnston valve may be obtained by writing the sales office, 601 West Building, Houston.

Petol Pipe Tong

W-K-M COMPANY

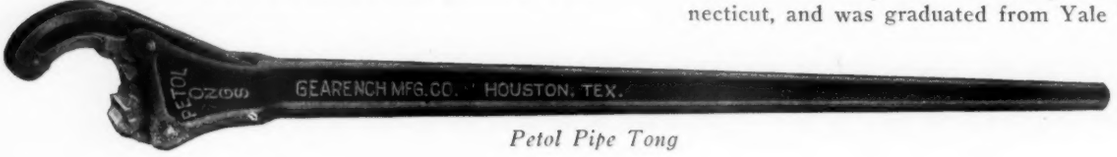
The W-K-M Company, Houston, is now marketing the new Petol pipe tong, which represents a distinct advance in design and construction in its offering of a number of new features.

It is a single handle tong, a feature which reduces the weight approximately 30 per cent. and increases the speed considerably. It is instantly applied and removed from the pipe, going on with a single light stroke, and coming off with a slight pull. A bumper cast integral with the lower jaw limits jaw closure and prevents crushing the pipe. The weight of the tong, aided by spring tension, engages the bits positively, and insures perfect ratcheting.

The handle is cast in the "T" shape to withstand severe strain and retain elasticity.

Bits furnished with the tongs are of the four-way type, and are made of high speed lathe cutting steel. These are fitted with quick change wedges so that bite may be reversed when necessary.

Petol pipe tongs are made in sizes ranging from one to 12 inches. The smallest size weighs only seven pounds and the larget weighs 110 pounds. Extra tension may be given the handle by slipping a length of pipe over it, giving more leverage. Material used in the tongs is of fine chrome nickel steel castings, heat treated for high elastic limits.



Petol Pipe Tong

TURBINE GENERATORS

Westinghouse Electric & Manufacturing Company, East Pittsburgh, has published and mailed out pamphlet No. 20378, which covers the subject, "Westinghouse Geared Turbine-Generator Units." It includes material on the general features and construction of the new 25 to 50 kw. d-c. geared turbine-generator sets. Photos and drawings show assembly, parts and special devices of the new units. The available ratings with dimensions are also scheduled.

District offices in Kansas City of the Ludlow Valve Manufacturing Company that have been located at 1416 R. A. Long Building have been moved to 518 in the same building, where larger and more commodious quarters have been obtained.

Robinson Packer Company, Tulsa, announces that Jon R. Long of Fort Worth, has been named distributor and sales representative in that territory for the company's products including packers and limit plugs and other specialties. Complete warehouse stocks will be maintained at 740 West Rio Grande Street, Fort Worth.

M. F. Waters has resigned as vice president and a director of the Smith Separator Company of Tulsa, after six years of service. He is now vacationing in Colorado.

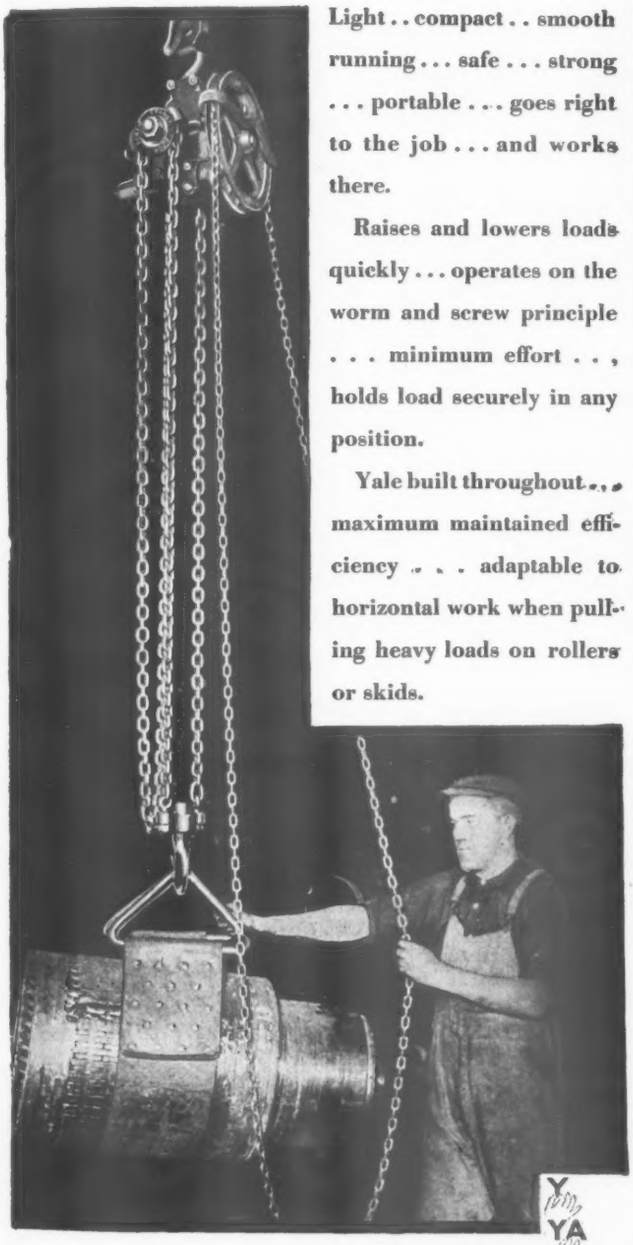
J. S. Tritle

J. S. Tritle, in charge of manufacturing operations of Westinghouse Electric & Manufacturing Company, was made vice president at the last directors' meeting. He has been an outstanding figure in the electrical industry since 1893. In 1922 he was made manager of the merchandising department, supervising the sales of that department's products, following his service as manager of the St. Louis district sales offices for a number of years. In 1925 he assumed full charge of the engineering and manufacturing as well as sales work of the merchandising division, with headquarters at Mansfield, Ohio. On May 1, 1929, he succeeded Vice President H. P. Davis in the responsibility and authority for manufacturing operations of the entire company, the latter being assigned to devote his entire time to the activities of the company in the radio field.

Tritle was born in Virginia City, Nevada, in 1872. He received his early school training in New Haven, Connecticut, and was graduated from Yale University in 1893. His headquarters in the new position are at the company's East Pittsburgh plant.

TRADE **YALE** MARK

The Yale Screw-Geared
CHAIN BLOCKS



Light . . compact . . smooth running . . . safe . . . strong . . . portable . . . goes right to the job . . . and works there.

Raises and lowers loads quickly . . . operates on the worm and screw principle . . . minimum effort . . , holds load securely in any position.

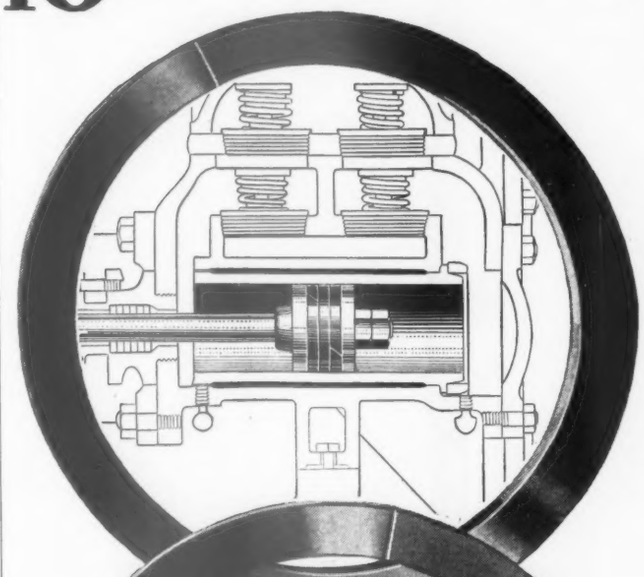
Yale built throughout . . , maximum maintained efficiency . . . adaptable to horizontal work when pulling heavy loads on rollers or skids.

YALE

THE YALE & TOWNE MFG. CO.,
STAMFORD, CONN. U. S. A.

YALE Hoisting and Conveying Systems
YALE MARKED IS YALE MADE

These Rings Saved 10 Strokes *per* Minute



In a recent test Garlock-108 Glassy Hard Black Packing Rings, saved ten strokes per minute of the piston rod on an inside packed boiler feed pump. The pump packed with Regular Rock Hard Hydraulic Packing required nineteen strokes per minute as against nine strokes per minute when packed with Garlock-108 rings to deliver the same volume of water. The Garlock-108 rings give nine months service, while the Regular Rock Hard Packing had to be replaced every few weeks.

It is easy to picture the immense saving that will accumulate when Garlock Packing Service is used.

In the instance mentioned above far less power was consumed, the wear and tear on the pump greatly reduced and labor cost of repacking brought down to a minimum.

Put your Packing Problems in the hands of a Garlock Service Man.

THE GARLOCK PACKING COMPANY
PALMYRA, N. Y.

Hough Duo Pump

Designed for use where excessive sand is present—the finest and most efficient two-purpose pump you ever tried—give one a trial and be convinced. Ask your dealer.

The Charles N. Hough Mfg. Company

FRANKLIN, PENNSYLVANIA

Squeaks from the Bull Wheel

You are accused of beating up a collector and two policemen.

I did it in a moment of weakness, your honor.

"Two Scotchmen dined together in a restaurant. After dinner the waiter brought the bill. The two men sat talking and smoking for a couple of hours, and then talk failed them, and they just sat smoking.

"At midnight or a little later, one of the Scotchmen, excusing himself to his friend, went and telephone to his wife:

"'Don't wait up for me, lassie. It looks like a deadlock..'"

Are you sure he was intoxicated?

No, sir, not positive, but his wife says he brought home a manhole cover and tried to play it on the phonograph.

The taxi corporation was interviewing an applicant chauffeur.

"Are you honest and straight forward?"

"Yes."

"Absolutely trustworthy?"

"Positively."

"If you should find a pocketbook containing $100,000 in your cab, what would you do?"

"What would I do?" shouted the taxi driver. "What would I have to do? I'd do nothing, and live on my income."

I 'aven't seen yer 'usband about lately, Mrs. Higgins. I 'opes 'e's quite well.

Didn't you 'ear? 'E fell off a tram and got conclusion.

You mean concussion, my dear.

I mean conclusion—'e died.

A dapper young squirt came fussily into the drug store and demanded a good deal of attention for some trivial purchase. The lumbering old druggist stood for his impertinence good naturedly. Finally the customer said: "And get me some insect powder—that'll work, mind you."

The druggist appeared to meditate, looking the young man over. "'Fraid I can't sell that to you, sir. I don't want to get into no trouble."

"Trouble?" shrilled the young man, "what do you mean, trouble?"

"Been an awful lot of suicides lately," was the doleful reply.

"Yassuh," said old Link, "business very good. Done bought a pig fo' ten dollars, traded pig fo' a barrer, barrer fo' a calf, calf fo' a bicycle, and sol' de bicycle fo' ten dollars."

"But yo' don' make nothin,' Link."

"Sho 'nough, but look at de business ah been doin'."

The southern bank had run into difficulties, and had resolved to discontinue payments sharp at noon. It happened that Uncle Jake reached the window just at twelve. Bang, went the window in his face, and his book and withdrawal slip were refused.

"No good, uncle, the bank's busted," said the teller kindly.

"Busted? What you'all mean busted?"

"Just that. Didnt' you ever hear of a bank busting?"

"Sho 'nough," was the sad reply, "but ah never had one bust plumb in mah face befo'."

Customer—Are those eggs strictly fresh?

Grocer—George, just feel if those eggs are cool enough to sell yet.

"What has become of the little red schoolhouse of story and song?"

"It is now known as a rural educational unit."

"One thing I like about that new clerk of ours is that he is trustworthy. You can always tell what he is going to do next."

"And what is that?"

"Nothing."

"John, why are you stopping here?" asked the Missus. "This is ten squares from where I want to go."

"I know it," he grinned, "but this is the first open parking space I've seen this side of the country, and I could not resist the thrill of pulling into it, even if I didn't intend to stay more than a minute."

A Sunday school boy was asked "What was the writing on the wall in the story in the Book of Daniel?"

He replied: "Amy, Amy Semple McPherson."

My father is richer than your father. He's got three houses and yours has none.

Yes, but my father holds the mortgages on your father's houses.

The stately old aristocrat was approached somewhat cockily by a rich and vulgar young man who announced: "I say, sir, I am thinking of marrying one of your girls. Have I your permission?"

"Yes, indeed," was the reply. "Which one interests you, the maid or the cook?"

I am very glad to see you coming to church regularly, Mrs. Black.

Oh, yes, sir. I'll be coming often now, sir. I does it to spite me old man. He hates me going to church.

SKILLED SUPERVISION GUARANTEES THE QUALITY OF GULF PRODUCTS

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

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The same quality of castings, the same accurate machining, the same careful workmanship that we put into Gaso Pumps we also put into Gaso FITTINGS. As a result, they have a special appeal for pipe line officials who build with the future in mind.

In addition to a comprehensive line of standard fittings—including heater heads, Beckwith swing check valves, liner expanders, river clamps, pipe line strainers, extra heavy flanges and ground joint flange unions—our foundry and pattern shop enable us to figure on special requirements.

Our engineering department is, as always, at your command.

GASO PUMP & BURNER MFG. CO. .. *Tulsa, Oklahoma*

210 Petroleum Bldg., Fort Worth, Texas

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GASO GRAY IRON TEE

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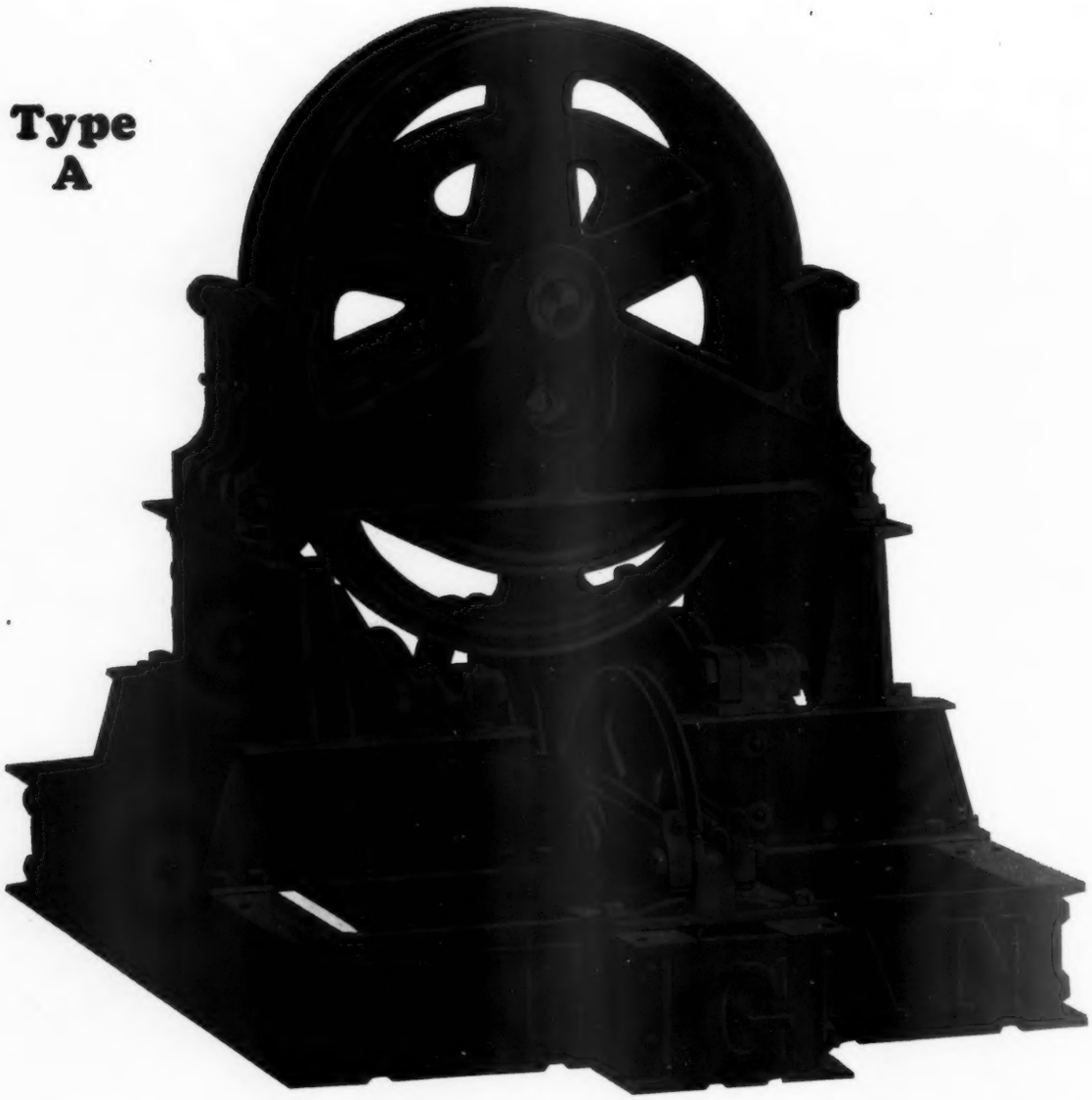
GASO PIPE LINE STRAINER

GASO BECKWITH SWING CHECK VALVE

GASO PUMPS for every oil industry need

Type A



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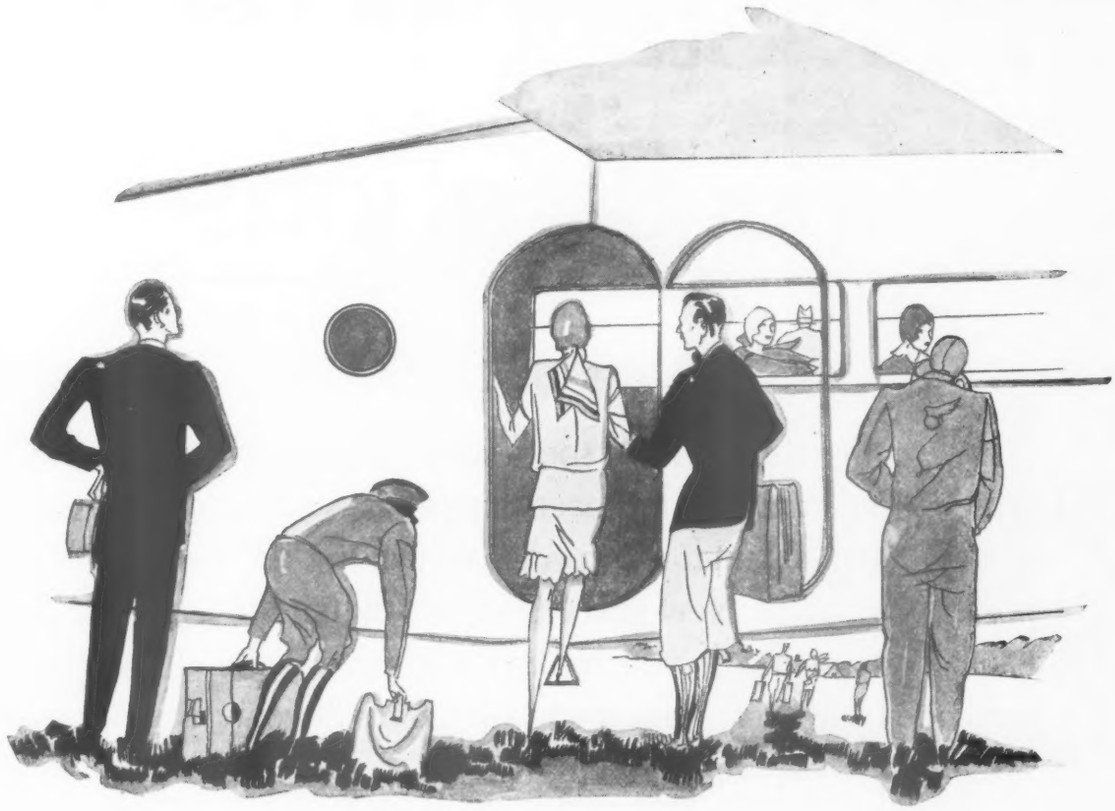

Entering a Ford Tri-Motor you know that everything that could be done to promote safe, dependable and comfortable air travel, has been done!

Entrusting your cementing to Halliburton, you know that everything that can be done to keep trouble out and oil in, is being done. In so important a matter, does it pay to be satisfied with anything less than the best?

HALLIBURTON

OIL WELL CEMENTING COMPANY

DUNCAN, OKLAHOMA

A. P. I. Standardization Specifications

The complete A. P. I. specifications on products on which standardization has been completed will be found, in a most convenient form, in your copy of the 1929 Composite Catalog of New and Standard Oilfield and Pipe Line Equipment. If you haven't a copy of your own, someone nearby in your organization does have a copy.

You'll find that all the supplements have been inserted in their proper places. You'll find that the illustrations are identical with the illustrations in the official A. P. I. standardization book. In fact, this A. P. I. section was edited by the Standardization Department of the A. P. I. to assist the industry in having the official data convenient to every one who might have a use for it.

These Standardization specifications occupy more than 100 pages in the Composite Catalog.

They'll save you time and inconvenience.

The Gulf Publishing Company
(Catalog Division)
HOUSTON

D+B HEATREAT SUCKER RODS

RESIST VIBRATION

The materials and construction of D & B Sucker Rods are governed by field and laboratory tests made in bending, pulling and vibrating. They are a standard of quality the world over.

"If Continental Sells It . . . . There Is No Better"

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General Offices: St. Louis

THE CONTINENTAL SUPPLY COMPANY Ltd.
224 Traders Bldg., Calgary Alberta, Canada

EMSCO D+B
Protected by Steel
EQUIPMENT CO.

CONTINENTAL

WITH Colona Protected Pipe every length is immediately ready to use as soon as it is received in the field—there are no rejects due to damaged threads—no troublesome, time consuming delays due to dirty, sand filled coupling threads.

Colona Pipe Thread Protectors are composed of two units—the Colona Cap for the pipe threads and the Colona Nipple for the couplings. Together they safeguard the original factory cleanliness and accuracy of the threads as well as thoroughly protect the edges of the pipe ends from abusive handling and shipping.

"COME ON BOYS! THE PIPE IS READY TO PUT DOWN"

A NEW shipment of pipe direct from the mill and not a single coupling or pipe end damaged despite the fact that the pipe has been shipped a thousand miles and subjected to every kind of mishandling and abuse.

It pays to specify Colona Protected Pipe.
It saves time and expense.
It's a modern idea.

Colona Division
PITTSBURGH SCREW AND BOLT CORP.
PITTSBURGH, PENNA.

COLONA
PIPE THREAD PROTECTORS

There is no economical substitute for quality.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Copyright 1929 Axelson Machine Company Los Angeles

A

Axelson

PUMPS & SUCKER RODS

These two pumps provide fire protection for a large western refinery. One pump is direct connected to a 350 h.p. steam turbine and the other is direct connected to a 350 h.p. electric motor. Each pump is rated to deliver 200 pounds per square inch discharge pressure, which assures adequate fire streams in case of fire. Such Byron Jackson pumps minimize the menace of fire in refinery operation. This company also manufactures a complete line of centrifugal pumps for every operating requirement. Write or call nearest branch.

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BYRON JACKSON
CENTRIFUGAL PUMPS FOR EVERY SERVICE

THE FOUNDER
AND HEAD
OF THE
CHAIN
OF
EMSCO
Medium priced, eight-place, tri-motored monoplane. Offers economical transportation, with extreme safety, for corporation executives, transport operators or private owners. Takes off with full load using any two motors and lands at 50 miles per hour.
Length over all, 36 feet; Span 57 feet; Height 12 feet. Powered with three Curtiss Challenger motors, 170 horsepower each. High speed, 130 miles per hour; Cruising speed, 100 miles per hour. Welded chrome molybdenum steel tube fuselage. Service ceiling, 15,000 feet.
Emsco
CHALLENGER
EMSCO
AIRCRAFT CORPORATION

The SKY-LINE of SUCCESS

FOR 35 years Jones Sucker Rods have played an important part in the success of the oil industry, blazing the trail of successful oil production from the original oil fields of Pennsylvania to the far off oriental oil fields of Irak.

In fact you can scan the bristling horizon of any oil field in any part of the world today and there find the evidence of Jones Sucker Rod dependability. 150,000,000 feet of Jones Sucker Rods have already been used—a string which would encircle the world and still be 3500 miles to the good on the second lap.

Pioneering from the beginning of the first steel sucker rod, Jones has always been an outstanding leader in improving the strength and design of sucker rods, the latest and greatest improvement being the development of the Jones High Manganese steel Sucker Rods—acknowledged by actual tests to be the strongest steel ever used for the purpose.

The great popularity of this new super-steel rod is illustrated by the fact that there are more than 3,000,000 feet of Jones H. M. Sucker Rods now in active use throughout the oil fields.

Why not join the great throng of successful oil men who swear by and not at this rod of super service?

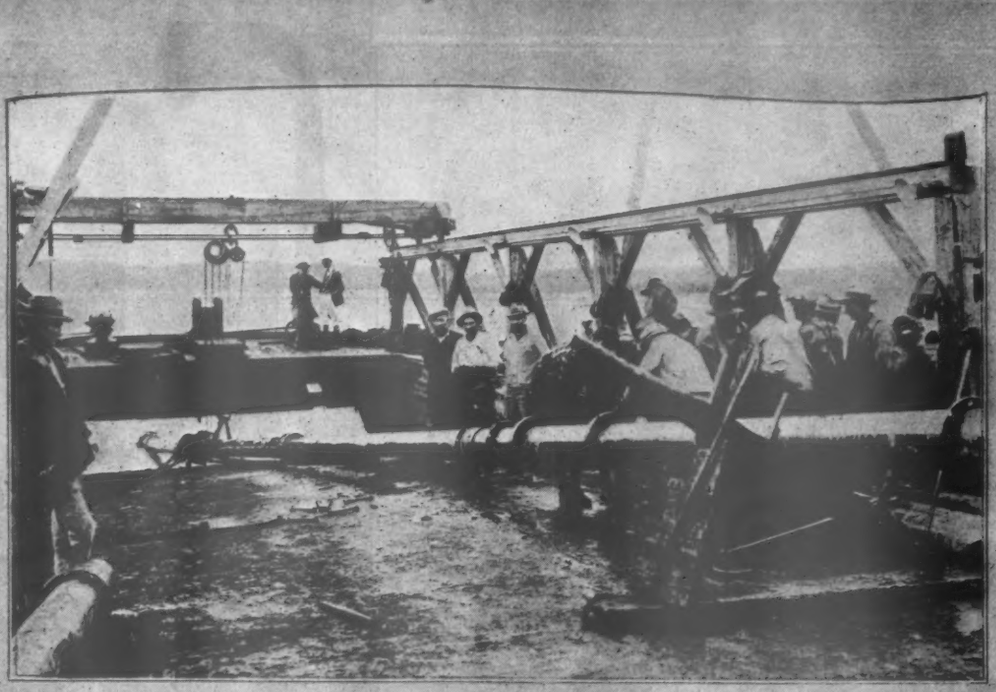
The S. M. Jones Company

TOLEDO, O., U. S. A.

Mid Continent Office—McBirney Bldg., Tulsa, Okla.

Made to API Specifications

JONES SUCKER RODS



Laying water lines at Mississippi river crossing

208 Miles of 18-Inch Gas Line in 92 Days Is Record on Memphis Project

STARTING in Louisiana, this 208-mile 18-inch gas line reached Memphis in 92 days. Laying the line involved the crossing of cotton fields, gumbo, swamps, the Mississippi and four other rivers; nine railroads; canals, ditches and bayous—about the full range of experiences that would likely be encountered in laying a pipe line anywhere.

While much credit belongs to the skill of workmen and the wise supervision of the job, still a share may go to an ever-ready and adaptable pipe whose characteristics—more particularly strength, ductility and well-finished ends, meant much in the general success of laying the line.

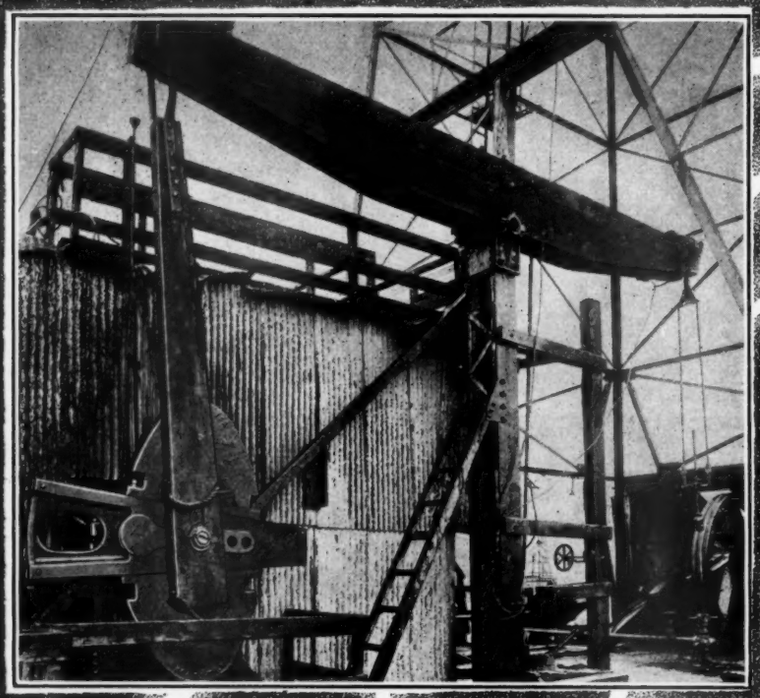
There is much satisfaction in knowing that when difficult installation problems are encountered which place extra strain on the pipe, such as, crossing rivers and deep ravines, that the pipe can be counted upon to meet these special conditions in a thoroughly satisfactory manner. The extensive use of **NATIONAL** for lines involving unusual engineering problems is substantial evidence of the reliability of this pipe for special and difficult conditions—one of the reasons why **NATIONAL** is

AMERICA'S STANDARD PIPE FOR OIL AND GAS LINES

NATIONAL TUBE COMPANY · Pittsburgh, Pa.

Subsidiary of United States Steel Corporation

NATIONAL PIPE



THE LUFKIN LINE

Lufkin

Counter Balanced Cranks

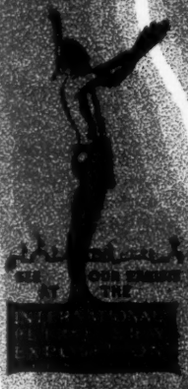
for Standard Rigs

THE Lufkin-Trout Counter-Balanced Crank for oil well pumping has been accepted by producers and recognized by oil field equipment manufacturers as the correct method of balancing wells. To such an extent has this method grown in favor that producers are demanding Lufkin-Trout Counter-balanced cranks for their Standard Rigs on oil wells where life of well does not justify full Lufkin equipment.

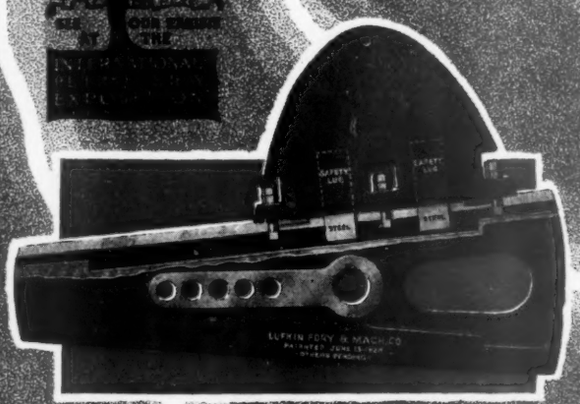
Lufkin-Trout Counter-balanced cranks relieve shaft of all strain and there is no tearing up of band wheel due to side strain. Weights are easily adjusted to proper position and balancing within four amps is possible.

As originators of the crank counter balance much experience has been gained by actual tests in the shop and field.

An explanation of the features of the Lufkin-Trout counter balance crank will convince anyone of its effectiveness and flexibility. A folder explaining these features will be gladly sent on request.



Below—Lufkin-Trout counter balanced crank. Note safety lug—weights cannot slide off. This feature with the wheel brake allows weights to be adjusted within five minutes.



LUFKIN

MODERN PRODUCTION EQUIPMENT

Manufactured at Lufkin, Texas, by

THE LUFKIN FOUNDRY AND MACHINE CO.

THE LUFKIN LINE

District Offices

Tulsa, Okla. Houston, Texas

THE LUFKIN LINE

Los Angeles, Cal. Seminole, Okla. El Dorado, Ark. Odessa, Texas New York, N. Y.

View of boiler room of the Southern Pacific *S. S. El Occidente.* Reading Charcoal Iron Boiler Tubes are used in these boilers.

Simple Facts — Measure Them in Dollars!

Two simple money-saving facts make up the case for Reading Charcoal Iron Boiler Tubes. First, these tubes have an inherent structure which resists corrosion. Second, they are immune to vibration — the constant throbbing of the engines. That is why service records of from 15 to 20 years are not unusual for Charcoal Iron Boiler Tubes in industrial boilers!

Measure the worth of these facts for yourself in dollars saved by using Reading Charcoal Iron Boiler Tubes for your next installation. To insure that you get time-tested, long-lasting Genuine Charcoal Iron, the stencilled name "Reading" appears on every tube.

READING IRON COMPANY, Reading, Pennsylvania

Atlanta · Baltimore · Cleveland · New York · Philadelphia
Boston · Cincinnati · St. Louis · Chicago · New Orleans
Buffalo · Houston · Tulsa · Seattle · San Francisco
Detroit · Pittsburgh · Ft. Worth · Los Angeles
Kansas City

Reading Charcoal Iron Boiler Tubes are furnished in sizes ranging from 1½" to 6" in diameter and may be obtained through the following distributors:

John McKenzie and Co.
Baltimore, Maryland

Williams and Co.
Cincinnati, Ohio

Williams and Co.
Cleveland, Ohio

Harrisburg Pipe & Pipe Bending Co.
Houston, Texas

Standard Supply & Hardware Co.
New Orleans, La.

John B. Astell and Co.
New York, N. Y.

Eagleston Parke, Inc.
Norfolk, Va.

John B. Astell and Co.
Philadelphia, Pa.

Williams and Co.
Pittsburgh, Pa.

Export Agents,
Wonham, Inc.
New York City

READING PIPE
CHARCOAL IRON BOILER TUBES

BETTIS IN BORNEO

More than 5,000 Bettis Protectors are in service in wells in Borneo oil fields. Thousands of Bettis Protectors are in service in other overseas fields including Dutch East Indies, India, Burma, Japan, Russia, Roumania, Venezuela, Trinidad, Colombia, Peru, Argentine, and Mexico. Close to 200,000 Bettis Protectors have been placed in service within eighteen months. Drillers universally recognize the necessity for Bettis Protectors in difficult rotary drilling.

Patterson-Ballagh Corporation

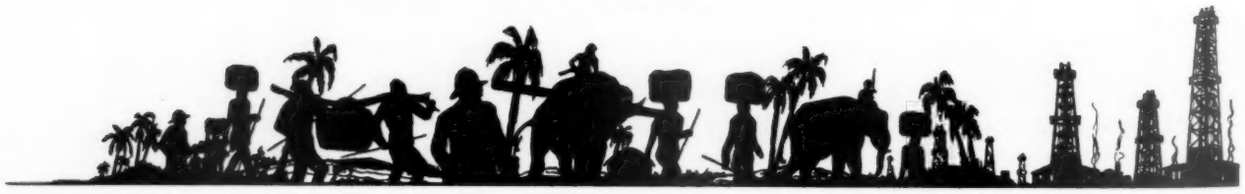
Insurance Exchange Building, Los Angeles

Mid-Continent Distributors:

Bettis Sales Co., 616 Public Nat. Bank Bldg., Houston

New York Office: 39 Cortlandt St.

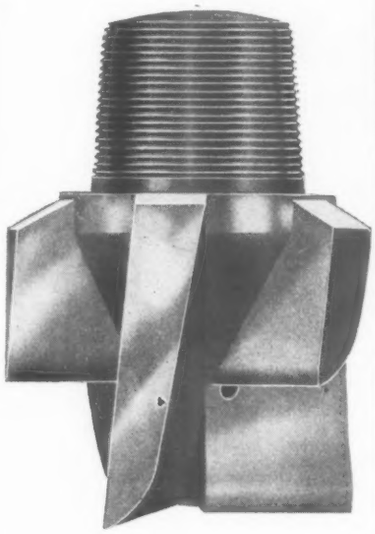
Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas; New York City.

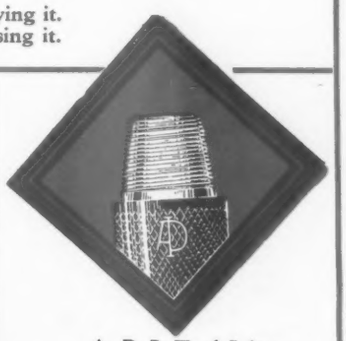


Satisfaction is the result of using BREWSTER Products

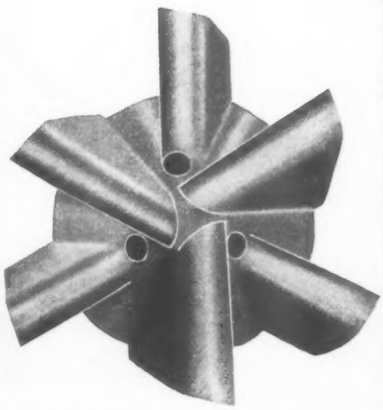
Herbert Spencer said: "There is a principle which is a bar against all information and which will keep a man in everlasting ignorance: that principle is contempt prior to investigation."

If we're right—you're wrong in not trying it.
If we're wrong—you're right in not using it.

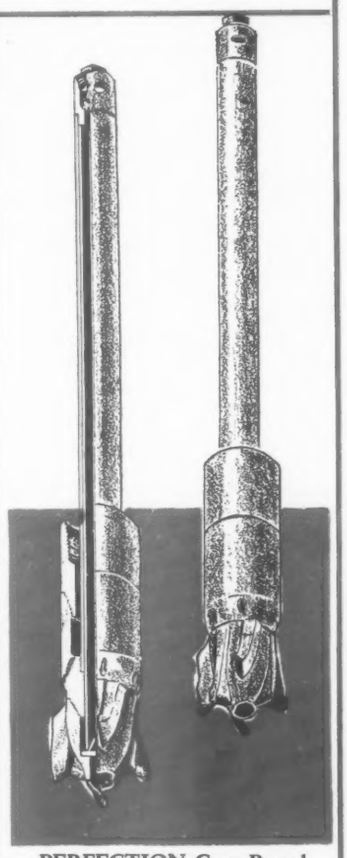




A. P. I. Tool Joint



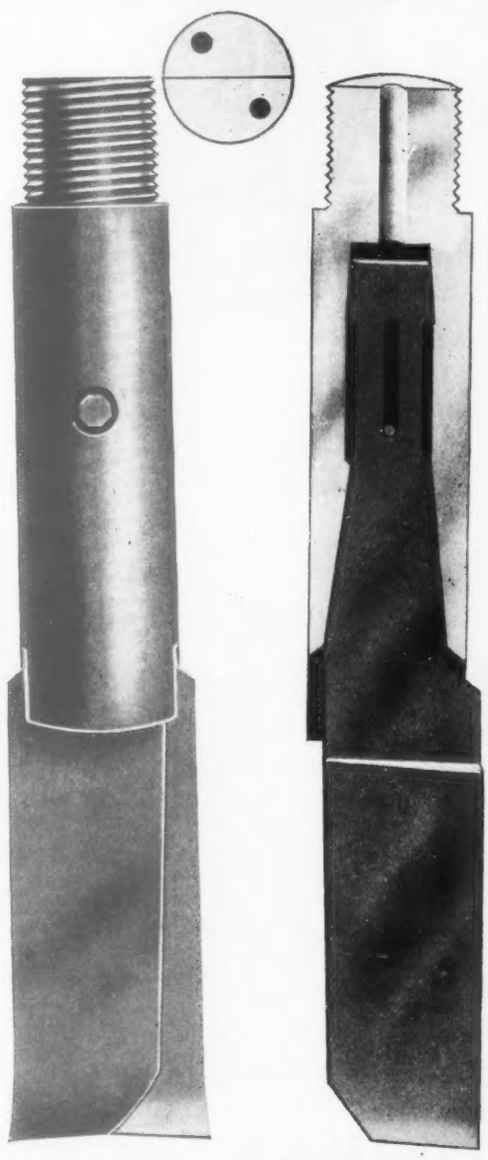
Straight hole Rock Bit set with "Diamond-Like" hard facing. Cuts any formation.



PERFECTION Core Barrel

A. P. I. Gumbo Bit

A. P. I. Fish Tail Bit



Miller Under Reamer for straight hole drilling. Manufactured by Brewster Company exclusively.

The Brewster COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS INC.
Shreveport, Louisiana

Distributed by: Continental Supply Co., all stores; Wilson Supply Co., Houston and Beaumont, Texas; T. T. Word Supply Co., Lake Charles, La.

Exclusive Export Agents: W-K-M Company, 74 Trinity Place, New York City

AN AUTOMOBILE TYPE ENGINE TRIED TO DO THIS ENGINE'S WORK

6

INTERNAL COMBUSTION POWER June, 1929

But Mr. Erskine Didn't Make That Engine For Oil Field Use!

Some time ago in these columns we dropped a few heartfelt paragraphs in regard to those amateur producer economists who are kidding themselves into believing that the purchase and use of a used automobile motor is cheaper than the purchase and use of a new slow speed, heavy duty gas or oil engine. We still maintain our theory is 100% O. K.

A story comes to our desk that once more substantiates our belief. A certain producer whom we will not shame by naming bought a Studebaker Big Six motor—a motor in excellent condition as the car in which it had been installed had been driven only 6000 miles and passed to the Great Beyond because the driver tried the unfortunate experiment of mixing moonshine and gasoline and while the experiment was at its height, so as to speak, the driver tried to drive said car up a Bell Telephone pole.

The engine survived the accident intact. The purchaser chortled in glee over his lucky buy and installed the engine on a lease where several wells were pumped through a geared power. The engine handled the load with seeming ease and the producer went up and down the land proclaiming what a smart man he was.

When the hook-up was made it was attached to a speedometer so the mileage was properly and accurately registered, day by day. The wells were only pumped 5 or 6 hours per day and the fuel was charged at a fairly high rate per thousand cubic feet.

Not long ago the Studebaker Big Six engine just refused to handle the load. Truth is it was about worn out. The speedometer disclosed, to the utter amazement of the producer, a total mileage of 97,000 miles. And, after all is said and done 103,000 miles is more than we usually get on our cars.

And so—the producer bought and installed a slow speed, heavy duty gas engine of 15 H. P. and it is now handling the load with ease and with an economy that is surprising the producer. It is using just one-third as much fuel as did the Studebaker Big Six engine.

Everyone is now happy.

Understand, please, this squib is not a knock at the quality of the Studebaker car or engine. We know and like Mr. Erskine, President of Studebaker Corporation. We know, like and respect the Studebaker automobile But the truth of the matter is, Mr. Ersine didn't raise his child to work in the oil fields—the Studebaker motor is a good one—look at the records for speed and endurance and economy it holds—but it was not designed to handle an oil field load. Even Mr. Erskine will admit that!

There's no economy in using a motor car or truck engine to drill, pump or run a compressor—the wise producer buys a slow speed, heavy duty oil or gas engine and saves money, time and effort—and twenty years from date of purchase the engine still has a high salvage value and can and will do a good day's work.

And that's *real economy.*

—H. B.

RUMELY OIL PULL TRACTOR

SEE OUR EXHIBIT AT THE INTERNATIONAL PETROLEUM EXPOSITION TULSA

The Rumely Oil Pull Winch Tractor has a large, heavy-duty, slow speed engine built especially for oil field use

—Send all inquiries and orders to - - -

FRED E. COOPER

Special Rumely Representative and Developer of Oil Field Machinery

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